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II. THE OLYMPIC GAMES IN ANCIENT TIMES.*

EDWARD M. PLUMMER.

In historic times the great national festivals were already established. They had undoubtedly grown out of local athletic festivals of very ancient origin. Of these Panhellenic festivals, that celebrated once in every four years at Olympia in Elis was the oldest and the greatest. The nationalization of this festival is assigned traditionally to the year 776 B. C. This date depends on a list of Olympic victors, compiled in the last part of the fifth century by the sophist Hippias of Elis, and handed down by Eusebios. Modern historians are not unanimous in accepting the early part of this register, and the minority have supported their charge of spuriousness by adducing unharmonious facts. In itself the date 776 B. C. is not unreasonable. And when it is considered how comparatively easy and common travel was in Hellas, it is not rash to suppose that the festival, when once it had become celebrated as a local affair was resorted to by travellers, if not as participants, at least as spectators. Certain it is that the Olympic festival was already a Panhellenic institution, when the other three festivals were established early in the sixth century, and that to the close of Greek history it continued the most glorious.

The Pythian games were celebrated on the Krissean Plain in Phokis in honor of Apollo. These games were held for several days in January in the third year of each Olympiad. The prize was a wreath of laurel and a palm.

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* The first paper on athletic games among the Homeric heroes was published in the Review for December, 1897.

The Nemean games were held in the groves of Nemea, near Kleonai in Argolis, in the winter and summer alternately of the second and fourth years of each Olympiad. The prize was a wreath of parsley.

The Isthmian games, instituted in honor of Poseidon, took place at Corinth in the spring and summer alternately of the first and third years of each Olympiad. This alternation was arranged to avoid interference with the Olympian and Pythian festivals. The victor's prize at the Isthmia was a wreath of pine native to the spot.

Beside the four national festivals, minor games of more frequent recurrence existed all over Hellas. How eagerly the victor in a local exhibition must have turned his eyes towards Nemea, the Isthmus, Pytho, and perhaps even to Olympia may be imagined. Each of the four great festivals had peculiar features of its own. Thus, the Pythian games, probably next to the Olympian in importance, were characterized by competitions in music and poetry in addition to the athletic contests. The Isthmian games were distinguished by the addition of boat-racing and swimming contests.

But all were essentially alike. All were designed as glorifications of the strong and agile body. All were marked with patriotism. All were embellished with the greatest products of Hellenic art. All were held in honor of gods. And a fitting tribute and worship they furnished, not the mumbled prayers of a sallow-visaged, stunted race, but the exultant feats of proud, self-reliant men. All were attended by the most studied and artistic pomp. The greatest lyric poets of Hellas, Simonides and Pindar, for instance, celebrated the victors. Of Pindar's *ἐπινίκια* or "Odes of Victory," we possess fourteen 'Ο*λυμπιονῖκαι* for winners in the Olympian games. Twelve Π*υθιονῖκαι* for the Pythian games, seven Ν*εμεονῖκαι* for the Nemean games, and eleven 'Ι*σθμεονῖκαι* for the Isthmian games. Even the wise men and famous bards of Greece could not resist the desire to be present. It is said that the Spartan Chilon, one of the seven wise men of Greece, died while witnessing these games, being overcome with joy at his son's victory. Sages like Pythagoras, Anaxagoras, Sokrates, Plato, Aristippos, Diogenes and Thales came, lured not only by the desire of beholding athletic feats, but also eager to engage in debate, or perhaps to explain some new theory of the universe. Statesmen like Themistokles and Kimon resorted to the games and there met the rulers of distant states. Orators and sophists like Gorgias, Lysias and Demosthenes, were present at the Olympian games. The first two made great panegyric speeches. The games on the Isthmus were attended by the great dramatists Aischylos and Ion. Historians like Herodotos carried their scrolls to read before assembled Hellas. Artists came to exhibit their works of art, and perhaps to obtain new customers. Sculptors showed models of their skill, and potters exhibited vases. These games, like the Schwingfest and the shooting-matches of Switzerland, served not only as pleasant occasions of reunion, but tended to the diffusion of national ideas. In the language of John Fiske, "young men of the noblest families and from the farthest Greek colonies came to them, and wrestled and ran, undraped, before countless multitudes of admiring spectators."

The victor in the foot-race at Olympia was regarded as an honor to his country, and gave his name to the current Olympiad, and on reaching home entered his native city to the notes of a triumphal song written by a Pindar or Simonides. Another significant fact is that the Greek era began with the Olympic games; every period of four years was called an Olympiad.

About twenty miles above the mouth of the Alpheios, in a long, narrow valley surrounded by well-wooded hills, it is joined by the ancient Kladeos, coming from the north. At the angle formed by the junction of the two rivers is the area known as Olympia, the scene of the greatest athletic festival that the world has ever witnessed.

To the north of this plain was a range of rocky hills, the nearest of which was the famous Kronion, conical in shape and about 400 feet in height. As its name signifies, this hill was sacred to Kronos, the father of Zeus. Another low range bounded the valley on the south. The western boundary was the Kladeos. Eastward was the hill of Pisa, and further in the distance were visible the snow-crowned summits of Erymanthos and Kyllene.

During the long centuries that succeeded the extinction of Greek civilization, the precinct of the games, and the equipments, buildings and statues that remained, were gradually covered by a stratum of alluvium from the Alpheios, mixed with a deposit of clay from Kronion. The rest of the world was not interested enough to record the process, and when in modern times scholars saw no trace of the original scene, it was supposed that the Alpheios by its overflowings had destroyed all monuments. Recent excavations, however, have revealed a very precious remnant at the bottom of the alluvium. It was indeed not really a misfortune that during periods when the products of old civilizations were treated with fanaticism on the one hand, and rapacity on the other, the Olympian scene was covered with earth rather than left exposed to the hand of Middle Age barbarians.

The systematic excavation of Olympia was undertaken in 1875 by the German government. The work involved great expense, and the willingness of the Germans to undertake and execute the task has brought them much praise from the scholars of other countries. The excavations were completed on the 20th of March, 1881.

During these six years a space in the form of a square, measuring 1,000 feet on each side, was stripped of the accumulated deposit of twelve centuries; the average depth of this covering was estimated to be over sixteen feet.

Archæologically, this excavation involved expert care and much labor. Neither the care nor the labor was withheld. The result may best be described in the language of an eminent professor of classical archæology: —

"The result of these excavations, carried on there at great cost and with supreme disinterestedness by the German people, has been to enable the traveller at Olympia not only to study the scene of the greatest of Greek athletic festivals, but to trace the celebration from hour to hour and from point to point. He not only sees the hill of Cronion, where the spectators crowded, wades through Olympic dust, and feels the sun of Olympia beat on his head, but he can wander on the threshold of the temple of Zeus, pass from building to building in the sacred enclosure of the Altis, and stand at the starting-point of the runners in the Stadium. Taking the guidebook of the old Greek traveller Pausanius in our hand, we can follow in his steps, and out of broken pillars, truncated pedestals and the foundations of demolished buildings, we can conjure forth the beautiful Olympia of old, with its glorious temples, its rows of altars, its statues of gods and godlike men who conquered in the games, its treasuries full of the noblest works of art and the richest spoils of war. And we can people the solitude with the combatants and with the spectators, a crowd filled with the enthusiasm of the place and with delight in manly contests; a crowd over whom emotions swept as rapidly as chariots through the hippodrome, and who were ever breaking out into wild cries of delight, or loud shouts of scorn and derision. We can see the bestowal of the crowns of wild olive, and can hear the heralds recite the names of those who have been victorious."

Here, then, in the summer time was held the great athletic festival in honor of Olympian Zeus. At the beginning of authentic history it was already a venerable institution. We have already learned that early in the sixth century the other three Panhellenic festivals were modeled upon it. Many myths very early sprang into existence to explain its origin. Pindar, it is well known, in one of his Olympian odes makes the Dorian Herakles the founder. Of course, the myths do not agree, and if they did would establish nothing directly; indirectly, however, they show that at the time of their first promulgation the festival had attained so approved a system, so wide a celebrity, and so great a prestige as to need accounting for and to be compatible with an exalted origin. And as a matter of fact, system, celebrity and prestige do not fall to the lot of an institution in the period of a single generation.

The festival was from the first under the charge of the Eleians. But so liberal a policy did this nation adopt and pursue that people from neighboring states were glad to send competitors. Rapidly the custom of resorting to the games spread to more distant states. From an Eleian event, the festival became Peloponnesian, and finally Panhellenic. The Athenians and Thebans at a very early date achieved splendid victories in these games. The Theban Pagondas was crowned victor in the four-horse chariot race in the 25th Olympiad, when for the first time this was a feature of the festival. Thus one state after another turned its attention to the venerable celebration, and if it happened that a citizen of one state was crowned victor in a contest, interest in the games was sure to be increased in that locality,

Even in the absence of positive evidence it would be contrary to reason to suppose that the games were originally established as they existed at the time of Pindar. In fact, the different features were added successively. According to a fairly reliable tradition, there was originally and for twelve following Olympiads only one contest: the *δρόμος*, a foot-race consisting of a single lap of a stadion of two hundred yards. About 720 B. C., according to the tradition, was added the *δίαυλος*, a race in which the stadion was traversed twice. Soon afterward was added the *δόλιχος*, or long race, consisting of seven, then of twelve and perhaps twenty-four laps. The next contest to be introduced was the wrestling-match. In the same year that wrestling was introduced, about the 18th Olympiad, the pentathlon made its appearance. This feature, though consisting of five contests — leaping, spear-throwing, diskos-pitching, running and wrestling — was nevertheless a single event, inasmuch as victory in one contest alone was not rewarded; an athlete to be crowned victor in the pentathlon must win at least three of the contests. Boxing and the chariot race are said to have been added in the 23d Olympiad. Thus the games grew more elaborate, and the time over which they extended was increased from a single day to five or six.

The festival was conducted by judges, called Hellanodikai, elected by the people of Elis a year beforehand. The number of these judges was about ten; they were expected to give close attention to their duties. Thirty days before the festival, candidates for the various contests presented themselves before the Hellanodikai for examination. In order that the name of a candidate could be considered, he must prove himself to be of pure Hellenic stock, and must give evidence of having practised in a gymnasium for ten months previously; finally, the candidate must practise for thirty days in the great gymnasium of Elis, under the supervision of the Hellanodikai. The names of those who were able to satisfy the judges were placed on a white board which was exposed to view at Olympia. After an athlete had been entered for a contest, it was considered the greatest ignominy for him to withdraw for any reason; indeed, for so doing he was heavily fined. Theagenes, an athlete of wide fame, was unable to enter the pankration because he had been disabled in the boxing-match; but inasmuch as he had had his name entered for both events, he was fined.

Eleven days before the festival, the Hellanodikai caused to be proclaimed by heralds throughout all the cities of Hellas the truce, sacred to Olympian Zeus, which was to last a month. It was this truce that made the Olympia possible as a Panhellenic institution. During the month that followed the proclamations of the heralds, all wars between Hellenic states were held in abeyance, and travellers were allowed to journey through them unmolested. The awful name of Zeus coupled with the decrees of rulers made this truce effective.

During the eleven days pilgrims from all over Hellas were approaching Olympia. Some of the scenes may be imagined In the language of Professor Percy Gardner: "From all the shores of the Mediterranean and the Euxine seas the Greek colonies sent deputations to represent them at the games, to bear offerings to the temple, and to perform sacrifices on their behalf. And the Greeks readily took a tinge from the land wherein they dwelt. There were dwellers on the northern shore of the Black Sea, to whom continual intercourse and frequent intermarriage with their Scythian neighbors gave almost the aspect of nomads; and colonists from Massilia, who in dress and blood were half Gauls. There were people from Cyrene, with the hot blood and dark complexions of Africa, and oriental Ionians, with trailing robes and effeminate airs. There were rude pirates from Acarnania, and delicate sensualists from Cyprus."

To give a detailed account of the competitions at each of the great festivals would involve much unnecessary repetition. That held at Olympia, therefore, may be taken as the type and the ideal of the others. But even at Olympia, the celebrations of which have been most widely written of both by ancient and modern scholars, it is not always easy to determine the exact order of the various contests.

There is hardly a doubt that at the Olympic festival as well as at the others the foot-races were the initial competitions. Plato says that at his time when a contest took place the herald first called on the *σταδιοδρόμος* to do his part. The reason for beginning with the foot-race was probably an historical one; as has been said, it was originally the sole competition at the Olympic celebration. According to the old Eleian priest legends, the Idaian Herakles, one of the Cretan Kouretes, came to Elis in the reign of Kronos, in the golden age, and arranged a foot-race in which the victor was crowned with wild olive. The legends further state that the place thus honored by the priest of Olympian Zeus was afterward called Olympia, and that in time the celebration was repeated at intervals of four years. Of course the foregoing is a tale invented to explain the priority of the foot-race as well as the founding of the festival. Another legend recounts that at one of these subsequent celebrations Endymion, son of Æthlios, offered the kingdom of Klymenos, whom he had conquered, as a prize to that one of his sons who should be first in the foot-race. Such are some of the myths that helped to sanction and endear an inviolable Olympic custom. It is noteworthy in this connection that in the Odyssey the Phæacians had opened their games with the foot-race.

The technique of foot-racing, the style of running most advantageous, and the training and qualities necessary for it, differ considerably with the distance covered. Accordingly very early in the history of the Olympic festival races of varying length were one by one introduced, and the variety doubtless tended to attract a larger number of competitors and to make the occasion more interesting.

For thirteen Olympiads, however, the race called the *δρόμος* was the only feature. In this race the stadion was traversed but once. As the course of the stadion was about 200 yards, the *δρόμος* was what we call a sprint, and required that a runner exert himself to the utmost from start to finish. This simple race remained a favorite mode of competition among the Greeks until a late time — being practised by Alexander.

The *δίαυλος*, or double course of the stadion, was introduced in the 14th Olympiad. This race required that the runner, after having traversed the 200 yards and reached the goal, should return to the point of starting. As he rounded the goal he described an arc, and on his way back took the opposite side of the track in order that he might not collide with other runners.

Very soon after the introduction of the *δίαυλος* the *ἵππιος δρόμος* and then the *δόλιχος* were instituted. The *ἵππιος δρόμος*, which implies a horse-race, was in reality a foot-race, the contestant running the distance generally covered in a horse-race — namely, four times the length of the stadion, or 800 yards.

The *δόλιχος* was added to the Olympic games in the 15th Olympiad, and was, like our long runs, a test primarily of endurance and lung-power. The distance covered varied from seven to twenty-four laps of the stadion, or from less than a mile to about three miles. At Olympia, however, the distance was twelve stadia. As the *δόλιχος* was run on the same track on which the single and double races took place, it was really only a series of double races.

In the 65th Olympiad, the *ὁπλίτων δρόμος* was introduced. In this race the competitors wore helmets and greaves, and carried shields on their left arms. Pausanius claims to have seen the statue of Demaratos equipped with a round shield, helmet and antique greaves. At a later period, however, the helmet and greaves were discarded at Olympia, and the race was run with shields alone. The distance covered in this race was two stadia — the length of the *δίαυλος*. Pindar, the poet laureate of the Olympians, mentions the race with shields, and with poetic privilege ascribes its origin to heroic times. Plato considered the exercise very valuable as war training, and prescribed it as a part of the athletics of his ideal commonwealth. Plato devised two other races involving armor: in one the competitor should be equipped as a heavy-armed hoplite, and should cover a distance of sixty stadia on a level plain; in the other the competitor should wear the light equipments of an archer, and should cover one hundred stadia over hills and valleys.

The running contests at the great games were governed by certain established rules. No fraud or guile was allowed to be used by the contestant on the track for the purpose of impeding his companions. They were very particular that all should start at the same time and from the same line, so that no one might have the advantage over the others. It was also contrary to rule for an athlete voluntarily to slacken his speed and allow his fellow-contestants to win. The competitors were appointed by lot and arranged in groups. These groups raced in heats of four, ranged in the places assigned them by lot. The first group was followed by the second, the second by the third, etc. When all groups had finished, the victors of each again entered the contest and strove for the prize; so that every *σταδιοδρόμος* had to win twice before he was crowned victor.

The physicians of olden times mentioned two other foot-races which in their opinion afforded excellent gymnastic exercise. The first of these was practised in the sixth division of the stadion and consisted of running first forward and then backward. In this race the body was not turned once, but the distance that was run forward was continually shortened by backward running until the contestant finally stood at the starting-point. In the second race the contestant ran on tiptoe with outstretched arms which he swung violently to and fro. It was practised along a wall so that, should the balance be lost, the runner could hold and support himself against it.

Among the less important foot-races were two that had their origin in certain local celebrations, namely, the torch race and the race of the vintage festival, held at Athens. Similar races took place at Sparta during the great national festival of the *Κάρνεια* held in honor of Apollo.

In the preparation for these different kinds of foot-races everything was done in the way of training that would tend to make the body as light as possible and increase its rapidity, although the different cities of Greece varied to some extent as regards the question of diet, rubbing and baths.

In practising for the foot-race the contestant, having divested himself of every shred of clothing and anointed his body with oil, was made to exert himself as much as possible. The exertion was often increased by making the run in deep sand instead of on firm ground; the foot having a less firm support, the runner was obliged to work harder and more quickly. In this way these exercises gave to the body not only great power of endurance, but also increased speed, and as a result the *δολιχοδρόμοι* possessed strong and well-developed legs. The shoulders and upper part of the body, on the other hand, owing to insufficient exercise were small and narrow. On that account Sokrates did not favor the races because they did not produce a harmonious development of the body. The skilled runner naturally strove to preserve an erect carriage while running, and to conform to all established rules regarding the contest. In this connection it may be interesting to mention the strange ideas entertained among the Greeks regarding the influence of the spleen over the powers of the body. This little organ, situated behind the stomach on the left side of the abdomen, and exercising some function which still remains unknown, would in their opinion if diseased prove a great hindrance to a contestant in the race. In order, therefore, to prevent such a catastrophe they resorted to extraordinary means, namely, the use of certain plants which they believed would dissolve or eat away the spleen; or even to surgical operations, such as cutting or burning it out. On the other hand, they believed that a diseased spleen was greatly benefited by exercise in running. Laomedon of Orchomenos is quoted as furnishing an example of this kind.

The attitude of the runners we learn from vases. Those who were contending in the short race or dash swung their arms backward and forward alternately. This is beautifully shown by a painting on a Panathenæan vase in the possession of Koller. It represents four athletes running, hardly touching the ground with one foot, while the other is raised and moved forward in order to cover the greatest possible distance with one step. The hands are wide open; the arms are moved about freely and appear to act as the wings of the body, and their motion is in harmony with that of the lower limbs. Another vase, discovered in the ancient tombs of Volci, also shows a similar method of running. The athletes are moving rapidly, and using their arms as wings. On the other hand, those who were running a long distance clenched their fists and held their arms close to their sides, as do our modern runners. A peculiar custom prevailed during the games. It is said the contestants kept up a loud shouting in order to retain their courage, while at the same time the admiring spectators cheered wildly as some favorite or friend neared the goal. As the Greeks did not possess the modern mechanical means of communication, they had to rely mostly upon messengers; hence the great necessity for expert runners. To this fact is due to a considerable degree the development of agonistic and running contests in Greece. It is said that after the battle of Platæa all the sacred fires which had been profaned by the Persians were extinguished, and that 'Ευχίδας, a Platæan, covered in one day the distance of a thousand stadia from Platæa to Delphi and back again, and brought his fellow-citizens the pure fire from the altar of Apollo. As a result of this terrible strain he sank to the ground and died. The Cretans were especially noted in the δόλιχος. Sotades and Ergoteles were among the most famous. The Arcadian Dromeos was another celebrated runner, having been like the former twelve times victorious in the δόλιχος. Ladas, the famous Spartan runner, was also victorious in the δόλιχος, but according to Pausanius died at the goal on completing a race.

Comparison of the speed of Hellenic athletes with that of modern runners is exceedingly difficult, because the Hellenes had no means of measuring minutes of time; they did not say of an athlete that he ran the δίαυλος in such a time, but that he won (*i. e.*, surpassed his competitors) in a certain Olympic celebration.

Probably the next event was the pentathlon. This competition was introduced into the festival at about the 18th Olympiad. As the etymology of the word signifies, the pentathlon consisted of five distinct competitions, enumerated in a well-known pentameter ascribed to Simonides: leaping (*ἅλμα*), running (*ποδωκείην*), diskos-throwing (*δίσκον*), spear-throwing (*ἄκοντα*), wrestling (*πάλην*). That the poet arranged the events in this order cannot be taken as positive proof that this was the real order, as it is hard to see how these words could be arranged otherwise in a pentameter. It is probable, however, that wrestling was the final contest. There is some uncertainty as to what constituted a victory in the pentathlon, but it is evident that the purpose of this competition was to develop what we call "all-round athletes," and the assertion that the victor must have won three out of the five contests cannot be far from the truth.

In such a combination of exercises it would certainly be good athletic policy to make leaping the first contest. It may be questioned whether an athlete could leap so well after having engaged in the more violent exercises, whereas leaping itself, instead of disqualifying for the other exercises, would on the contrary rouse the animal spirits without bringing on exhaustion, and thereby put the athletes at once in good condition. For the leap requires not only vigor and elasticity, but also courage and determination.

The beneficent results of this exercise were recognized at a very early period by the Hellenes, although in the heroic world the leap was not considered so important as the other modes of contest. In the games of Achilles the leap is not mentioned. In the Odyssey, however, the Phæcians, a light-hearted people, more fond of amusement than of war, are said to be skilled in leaping. It is in historic times, however, that leaping, as an important event in the pentathlon of the public games, acquires its technique, and receives the careful attention of athletes.

What may be called the pure leap, that is the standing leap without accessory aids, was not practised at Olympia. The leaper held in his hands weights resembling our dumb-bells, and known as *ἁλτῆρες*. To determine the dynamic advantage of these weights is not easy, but it is certain that with them the exercise required more skill, and accordingly more practice, that it called into play more muscles, and that it was more attractive to athletes as a mode of competition.

While little information can be obtained from classic writers concerning the *ἁλτῆρες*, much can be learned from archæological specimens. Pausanius describes them as having the form of a semi-oval, or inaccurately-rounded ring that could be grasped by the fingers as a shield was grasped. This description corresponds with a drawing of the *ἁλτῆρες* on a vase in Hamilton's second collection. *Ἁλτῆρες* of another shape, however, resembling very closely the modern dumb-bells, are seen on many other vases and gems. These had both ends rounded, and were narrow in the middle in order that they might be easily held. In Hamilton's first collection are vases giving representations of these *ἁλτῆρες*. In the Museo Borbonico may be seen on a patera a drawing in which the *ἁλτῆρες* have still another form: when the hand has grasped the handle of these, beyond the hand, on one side only, a club-shaped part protrudes. The *ἁλτῆρες* were usually made of lead.

In the pentathla, leaping never took place without *ἁλτῆρες*, which the athlete usually held directly in front of him, and then, as he sprang, brought behind him, thus helping to propel his body forward.

In addition to the *ἁλτῆρες*, professional athletes made use of another aid — the *βατήρ*. The latter was a board on which they stood before taking the leap, and which may indeed have been provided with a spring.

Pausanius especially mentions the fact that the leaping of the pentathli in the Olympic festival was accompanied by airs on the flute. This music was probably to open the pentathlon, the most splendid and stirring of gymnastic contests, as well as to increase the courage of the leapers.

The only leap that belonged to the pentathlon was the standing long jump. There is no trace of anything like the hop, step and jump. The figures of athletes on vases are represented not as running, but as standing and swinging the *ἁλτῆρες*. Then, too, it would seem that in the running jump the weights would be an impediment rather than an aid. With the aid of the *ἁλτῆρες* and the *βατήρ* enormous distances were covered. Phaÿllos of Rhegium is said to have covered more than fifty-five feet at a leap. But the record is incredible. Some German professors, however, are inclined to credit the record on the ground that the ancients had studied the theory of leaping more scientifically than have the moderns. For the sake of comparison the modern records in jumping may be introduced. On May 28, 1890, J. Darby of England, without the aid of weights, made a standing long jump of 12 1-2 feet. At Romeo, Mich., October 3, 1879, with 22-pound weights, G. W. Hamilton made a standing jump of 14 feet, 5 1-2 inches. A record of 23 feet, 6 1-2 inches, in the running long jump has been made twice: by C. L. Reber at Detroit, July 4, 1891, and by C. B. Frye of England, March 4, 1893. A jump of 48 feet, 8 inches, without weights and preceded by a hop and a step, was made October 18, 1884, by T. Burrows of Worcester.

In the palæstra and the gymnasium, leaping was practised in many different ways, as through a hoop, or over a rope. That the high jump also was practised is evident from the fact that the athletes leaped not only over pointed poles fixed in the ground, but also over one another's heads, after the manner of modern circus performers. Leaping from a higher place to a lower was also practised. Leaping took place in dancing and in various other sports. A dance, consisting principally of leaping was practised at Sparta, particularly by young women and girls. In this the dancers aimed to hit their backs with their heels. Aristophanes alludes to this custom in the following dialogue between Lysistrata and Lampito:

LYSISTRATA:
Hail! Lampito, dearest of Lakonian women.
How shines thy beauty, O, my sweetest friend!
How fair thy colour, full of life thy frame!
Why, thou couldst choke a bull.

LAMPITO.
Yes, by the twain;
For I do practise the gymnastic art,
And, leaping, strike my backbone with my heels.

LYSISTRATA.
In sooth, thy bust is lovely to behold.

It is probable that in the Olympic pentathlon leaping was followed by diskos-hurling, — a contest of great antiquity. An old myth represents Apollo as a diskos-thrower.

The diskos was circular in form with perhaps an average diameter of a little less than a foot, and was made of various materials at different periods and places. The heroic diskos, as has been said, was made of stone, while that of a later period was of metal, and even of wood. The diskos in common use at the Olympic festival was metallic, and resembled a small shield.

In the local gymnasia the size and weight of the diskos varied in order that an athlete might select one in accord with his strength. But in the men's pentathlon at the public games a standard diskos was required,—uniform in material, form, and weight, in order that the strength and skill of the competitors might be impartially tested and the victory correspondingly awarded. There is considerable doubt as to the dimensions and weight of this standard diskos. It is likely that the weight was between four and five pounds. A specimen found at Ægina and now preserved among the bronzes at Munich is about eight inches in diameter and slightly less than four pounds in weight. But another specimen at present in the British Museum weighs twelve pounds.

There is also doubt as to the distance to which a skilful athlete could hurl the diskos. An extravagant record of one hundred cubits is preserved in the writings of Philostratos. It is probable, however, that one hundred feet was an extraordinary throw and was exceeded only by the best athletes. While it is unlikely that the throws of renowned athletes were carelessly measured at the time, it is probable that many subsequent accounts were more or less exaggerated. It is well to bear in mind that the statue of

Phayllos was greatly admired among the Greeks because that athlete had thrown the diskos ninety-five feet.

It is interesting in this connection to note that at the International Athletic Games, celebrated at Athens in 1896, the victor in the diskos-throwing competition made a record of 95.64 feet. The diskos used in this competition weighed 4 3-4 pounds. Although three skilful Greek athletes participated in this competition and exhibited a technique much superior to that of the foreign competitors, yet the victory was won by Mr. Garret, an American, who though never having handled the diskos before threw it to the above distance, thereby surpassing the best throw of M. Paraskevopoulos, the Greek champion, by .64 feet.

To return to the ancient contests, the Homeric heroes practised diskos-throwing without completely disrobing,—the upper garment only being laid aside. But at Olympia after the 15th Olympiad all clothing was dispensed with, and the advantage of entire nudity in this sport came to be clearly recognized. Nudity characterized, of course, the diskoboloi of the other great athletic festivals. Again, while the Homeric heroes did not anoint the body with oil, the athlete of historic times did not consider his preparation complete without it.

After roughening his hands and the diskos with earth, in order to grasp it more firmly and handle it more deftly, the diskobolos ascended an eminence, called the βαλβίς. When about to throw, the body of the diskobolos was bent quite a little to the right and forward. At the same time the head was bent to the right so far that it was possible for him to see the upper left side of his body. The right arm was now moved from below, first backward to the height of the shoulders, and then with a rapid movement forward it described a semi-circle, giving the diskos at once velocity and direction. In throwing the diskos, the diskobolos rested first on the right foot and then on the left. At the moment of hurling the diskos the left knee was slightly bent, while the other was kept backward. As the diskos left his hand he took one or more steps forward. like a person throwing a ball in a bowling alley.

Again we are indebted to the archæologist who has brought to the light of day not only statues but also vases and gems with their elaborate scenes of the diskobolos in various attitudes, for they reveal to us many facts about which the ancient historians are silent.

In classifying these works of art three different attitudes may be recognized:

(1) The diskobolos preparing to throw.

(2) The diskobolos in the act of throwing.

(3) The diskobolos having hurled the diskos and still following it with his eyes, or where he has already been declared victor.

In the Museo Pio Clementino is a statue representing an athlete about to hurl the diskos. In his left hand he is testing the weight of the diskos, but holding the right ready to receive it and hurl it into space. This statue was supposed by Visconti to be a copy of a diskobolos by Naukydes, the pupil of Polykleitos. Many other copies are also seen on vases and gems. On one of Hamilton's vases the diskobolos holds the diskos in his right hand, supporting its weight in his left.

Of the statues representing the athlete in the act of throwing, we will consider only Myron's Diskobolos, the beau ideal of athletic motion, famous even in antiquity. Eight copies in a more or less mutilated condition have come down to us. That which was found in the Villa Palombara in 1781 on the Esquiline is the best reproduction of the original. This statue passed from the palace known as that of the *Massimi alle Colonne* to the *Lancelotti Palace*, Rome, where it still remains. The attitude of the diskobolos is very nearly that described by Lucian and Quintilian. In the *Philopseudes* — 1, 8, Lucian gives the following description of Myron's Diskobolos: "Thou speakest of the disk-thrower, who is bending forward for the throw, with his face turned away towards the hand that holds the disk, and with one foot slightly pointed, as if he would raise himself with the action of throwing."

The statue reveals probably the most approved attitude of a diskobolos just before making a throw. The centre of gravity falls upon the right foot, which, though the leg is bent in a slight curve, rests firmly on the ground; both legs are bent at the knees, but the left more acutely; the right fore-leg is perpendicular, while the left is thrust backward obliquely; the left foot, forming a noticeable curve, is upright and touches the ground only at the tips of the toes; the thighs, close together, slant upward, making an angle of over 45° with the ground; the upper part of the body is bent forward, and is steadied by the left arm whose hand rests against the right knee; the upper half of the body is twisted to the right; the right arm is extended backwards and is straight; the fingers of the right hand, which is somewhat above the level of the right shoulder, firmly grip the edge of the diskos; the head is turned so far to the right that the right side of the body is plainly visible; the eyes are fastened on the diskos.

It is evident that the diskobolos must have swung the disk in a semi-circle, and have hurled it from below forward, and that the whole body must have relaxed and readjusted itself as the right arm moved forward and imparted the pent-up energy to the disk. The pose of the large cast in the Boston Athenæum, as well as that of the cast in the Boston Museum of Fine Arts, is not in accordance with Lucian's description. Both represent the head as not turned aside but directly forward, with the eyes looking straight ahead. There is, however, in the Fourth Greek Room, a cast of a small bronze statuette, which is preserved in the Antiquarium at Munich. This is in many respects an excellent copy of Myron's diskobolos. In the catalogue of the casts in the Museum, this statuette is pronounced especially satisfactory from an æsthetic point of view because the line of equilibrium falls perpendicularly through the centre from whatever point of view the statuette is seen.

Besides this copy of Myron's statue, we find on many vases and gems the diskobolos in the act of hurling the diskos. For instance, on one of Hamilton's vases we see a diskobolos with a diskos in his right hand, while the right arm is bent and held forward, showing that he is on the point of moving the arm backward, and then forcibly hurling the diskos from below, forward. The left arm is bent over the head, the eyes are fixed on the diskos, the right foot is placed forward, so that the centre of gravity falls on the left, which is obliquely bent at the knee.

We will now consider the third class of statues, gems and vase-paintings representing the diskobolos as having thrown the diskos, and still following it with his eye, or where he has already been declared victor and adorned with the palm. In 1754 there was discovered at Herculaneum the bronze statue of a diskobolos from whose hand the diskos has just flown. He is still standing, however, with the upper portion of his body bent forward, the eyes looking sharply into space, the face full of expectation. The position of the right arm indicates that the hand is only just freed from the heavy diskos. Both feet are placed wide apart, as may be observed in several other instances, at the moment of throwing. In the *Galerie de Florence* is a gem which represents a diskobolos who has been declared victor. He holds the diskos in his left hand, the palm of victory in his right. At his right stands a prize cup, while at his left is a tripod upon which is a wreath and a palm. A painting from Herculaneum also represents a diskobolos after having thrown the diskos.

If space permitted, many other statues, vase and gem pictures could be cited to show the different positions of the skilled diskobolos. But enough has been said to show that to hurl the diskos through the air at once gracefully and effectively required the greatest skill and dexterity, and was an art acquired only through long practice. In diskos-throwing, distance, not height, determined the victor. He who threw the farthest beyond the mark or *σῆμα* was awarded the prize.

Diskos-throwing was a good preparation for war, as it developed great skill in stone-throwing — a very important feature in the war practices of the ancients. This exercise must have developed to a remarkable degree the muscles of the upper part of the body, shoulders, arms and hands — especially those of the right side of the body. At the same time the feet were trained in a firm and secure step, and, although the diskos was thrown at no fixed point, the eye was nevertheless used and trained. So beneficial was the exercise in certain cases that it was often ordered by the ancient physicians. Among the Spartans the diskos was especially loved, ostensibly on account of Apollo's contest with Hyakinthos on Spartan soil.

(TO BE CONTINUED.)

CHOREA AMONG PUBLIC SCHOOL CHILDREN.*

WILL S. MONROE.

The modern public school, with all its blessings, is a factor in the production of muscular and nervous disorders. And, until we are able to develop organisms adapted to the demands of present educational systems, many must necessarily lose efficiency in the effort to make themselves efficient. But the school is not alone in breeding diseases and unfitting many who are endeavoring to fit themselves to succeed. In this day many forms of professional and mechanical activity call for degrees of sustained effort which leave their trace in impaired muscles and injured nerves. One has but to glance through the pages of such a book as Hirt's "Krankheiten der Arbeiter" and read the long list of occupation neuroses—writer's cramp, telegrapher's cramp, seamstress' cramp—to be assured that the shop and the office, no less than the school, contribute their quota to the frequency and variety of fatigue neuroses.

A movement disorder which has presented itself to the writer with sufficient frequency to be considered more or less important is that of chorea, popularly known as "St. Vitus' dance." And in conversation with medical men, I have learned that the school is regarded as an important factor in the development of chorea and allied functional nervous diseases. Dr. Wm. Dale in a late issue of the *Lancet*, says: "Brain pressure of many studies in delicate and half starved girls is the most potent cause of chorea in our elementary schools." Von Ziemssen in Eulenberg's Cyclopædia of Medical Practice says: "Hereditary tendency to hysteria, bad education, indulgent parents, and credulous teachers play the chief part in the production of chorea." And Dr. Sturgis, physician to the hospital for children in London, says: "The physical indications of injurious schooling are of many degrees—not all of them obvious to unskilled observers. The early restlessness of children is very apt to be overlooked or misunderstood. As a consequence it presently grows into the disorder known as St. Vitus' dance."

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* Read before the Massachusetts State Teachers' Association, December, 1897.

Every choreic child passes her novitiate of restlessness—muscular twitchings of the arms, shoulders and legs, awkwardness in the execution of delicate tasks, exaggerated movements of face muscles, wrinkling of the forehead and knitting of the eyebrows. The development of the malady is slow and insidious, and these early evidences are, as Dr. Sturgis points out, apt to be overlooked or misunderstood by teachers.

At my request some teachers in the public schools recently observed during a period of five days the nervous manifestations of the children in their respective schools. And while it was noted that most children had a large repertory of such performances, it was also noted that there was usually one motion which was more persistent and more violent than the others. A group of 21 of the most nervous children were found to repeat the following movements during one school day: A, biting the lips, 13 times; B, stroking the forehead, 11 times; C, frown, 8 times; D, smoothing the hair, 7 times; E, biting the fingernails, 7 times; F, tapping on the floor with foot, 7 times; G, running the fingers through the hair, 7 times; H, pulling at a button, 7 times; I, stroking the face, 6 times; J, tapping on the desk with the fingernails, 6 times; K, swinging the foot, 6 times; L, rolling up the edge of the coat, 6 times; M, sliding the foot along the floor, 5 times; N, locking the fingers, 5 times; O, twisting a lock of hair, 5 times; P, shrugging the shoulders, 5 times; Q, snapping the fingers, 5 times; R, moistening the lips with the tongue, 5 times; S, folding the arms, 4 times; T, twirling the thumbs, 4 times; U, raising and lowering the right shoulder, 4 times.

In some instances these motions and grimaces are repeated for months and then disappear; and if this were the end of the matter it would scarcely seem worth our while to label a manifestation so apparently trivial a school-bred disease. But in so many instances another grimace or motion takes its place, and the variety and obstinacy of the habit becomes pronounced and fixed. I had in my classes recently a young woman who continually toyed with her pencil during recitations. I talked with her a number of times about the matter, and she told me that she had acquired the habit years before in the elementary schools. She admitted that she was usually able to control the annoying movement, but that restraint became increasingly difficult the longer she made such effort, and that a certain physical discomfort resulted; while to give way and let the impulse have free expression gave her a feeling of relief. These unwilled movements are apt to be overlooked by teachers, and yet they are indices in the progress of the disease and hint at a fall from the plane of health.

In his paper read before the seventh international congress of hygiene and demography on the "Physical Indications of Injurious Schooling," Dr. Sturgis analyzed 177 cases of choreic children, and the disease in 34 per cent of the cases he maintained were school-bred—due to overwork in school, preparation for examinations, school punishments and worry over difficult tasks. With a view to ascertaining the frequency of the disease in the public schools of Massachusetts, I sent the following letter to thirty teachers: "Have any instances of chorea, commonly called St. Vitus' dance, come within your experience as a teacher? If so will you not kindly write me all the particulars that you may know regarding each case—sex, age, causes of disease, present condition of the child, etc." I received 21 replies. Eight stated that no cases of chorea had come within their teaching experience, and 13 reported one or more cases each. Three reported three cases each; five reported two cases each, and five reported one case each. I am fully conscious of the fact that information thus received is very imperfect as evidence, but it seems to me sufficiently suggestive of probable frequency of the disease to justify analysis, and in the hope of securing more exact investigation, I have presented the returns under the rubrics, Sex, Age, Intellectual and Physical Conditions and Apparent Causes.

1. Sex.—Sixteen of the 24 cases reported were girls and eight were boys. Of the 177 cases reported by Dr. Sturgis, 134 were girls and but 43 were boys. In the report on chorea made to the British Medical Society, covering 439 cases, 322 were girls and 144 were boys. Judged by standards of sex, the girls appear more susceptible to chorea in about the porportion of three to one.

2. Age.—The age of three of the 24 cases reported to me was not stated, and the ages of the remaining 21 cases ranged as follows: One child was under six years; eleven were from six to ten years, seven were from 11 to 15 years, and two were over 15. In the report made by Dr. Mackenzie to the British Medical Society but six cases (out of 439) were under six years; 149 were from six to ten years; 191 from 11 to 15 years. The years from eight to eleven represent the period of greatest frequency.

3. Intellectual Condition.—One of my correspondents reports: "The child always appeared simple and was generally behind in her work." Another says: "She was formerly bright but she is now slow in her work and her speech is very imperfect." The British report states that the previous mental condition of 68 per cent was about normal; 13 per cent were below the average, and 7 per cent below. But all authorities are agreed upon the ultimate mental consequences of the disease—diminished attention, impaired memory, irregular speech, and whimsical, irritable temper.

4. Physical Condition.—One of my correspondents writes: "The boy was always frail." Another says: "The child is thin and wrinkled." A third: "The child is apparently in good health and is very stout." Forty-eight per cent of Dr. Mackenzie's choreic children were thin; 43 per cent were stout, leaving but 9 per cent for the normal type. The debilitating conditions of chorea are most unfavorable to normal growth. Incoherence of muscular effort is frequent. The penmanship is bad; the drawing unsatisfactory, and the mathematical work slow. Vision not infrequently is impaired. Dr. Stevens, the eminent oculist of New York, has shown the need of examining the eyes of all children with choreic tendencies. He maintains that ocular defect or eye strain is an important accessory factor in the genesis of chorea. And although the experts of the New York Neurological Society have shown in a careful and apparently impartial report that ocular defect alone cannot cause or cure chorea, the fact nevertheless remains that ocular insufficiencies do accelerate functional nervous troubles. Dr. Frederick E. Cheney, in an address before the Massachusetts Medical Society on "Errors of Refraction and Insufficiencies of the Ocular Muscles as Causes of Chorea," reports on the treatment of 23 children, mainly from the public schools of Boston, and he shows that with a few exceptions the children were helped by means of glasses or operations.

5. Causes of Chorea.—Among the causes enumerated by my correspondents are the following: Hereditary predisposition: the father a drunkard, and the mother weak-minded; over-study; appearance in public of a child vocalist, at the time but ten years old; heart disease; worry over examinations and promotion; late hours; much dancing, and social dissipation in general; mental depression due to the death of the child's mother;

shock occasioned by a fall; ill treatment and severe punishments at home; severe fright from being chased by a dog; the mother in her girlhood had over-studied, had had chorea, and the child had inherited the neurotic tendency. Dr. Mackenzie has attributed the cause of one-half of his cases to be of a direct nervous character—98 from fright; 71 from mental over-work, 34 from bodily over-work, 17 from shock, and 13 from imitation.

It is clearly apparent that imitation is an important factor in the production of chorea. This fact is fully confirmed by the history of the Middle Ages. Bricheteau report that the presence of a choreic child in one of the schools of France caused the development of the disease in eight other girls within six days, and that its spread was arrested by the choreic subjects being segregated. Dr. Wichmann in a recent issue of a German medical journal reports such an epidemic in the village of Wildbad, Germany. Twenty-six children were afflicted, 18 girls and eight boys. The fact that the disease is so easily propagated by psychical contagion indicates how important an early diagnosis becomes and how necessary prompt segregation.

The character of the disease would suggest that the teacher would be one of the first to note its development. Experience clearly shows that this is far from being the case. One teacher writes me: "I had observed for some weeks that J.'s arms and shoulders twitched, but I considered that the twitching was merely due to nervousness. He seemed to do fairly well in his studies and I paid little attention to the twitchings. Where he failed was in the Friday afternoon speaking. When he tried to declaim he would say perhaps two or three words and then break down. I compelled him to try the same piece week after week, but he rarely gave more than a few sentences. One Friday afternoon he recited the entire piece, the only apparent difficulty being the frequent long pauses. On the Monday morning following I learned that the boy was ill, and it transpired that he was suffering from St. Vitus' dance." It may be said that this was a cruel, thoughtless teacher, but she has numerous associates —teachers who continually sin in ignorance, and by their ignorant sinning they aggravate and bring to fruition no small number of school diseases. The child's clumsiness and apparent carelessness are considered in the light of pure cussedness or his petty exhibitions of temper render him a nuisance; and, instead of sending him home to be properly fed and given sufficient sleep and rest and quiet, most human schoolteachers do just what never should be done with choreic children—they punish them.

I have attempted to note the premonitions of chorea in only the broadest outlines, and in closing I wish to suggest to teachers some physical tests whereby the disease may be detected and its full development averted. Those suggested by Dr. Sturgis seem to me preëminently practical: "1. Movement disorder is the product and the index of mental disturbance, and it may be known by observations of the higher muscles (the face and hands) before it has reached the stage to which the term St. Vitus' dance or chorea properly applies. 2. When school children (and especially girls between seven and twelve) alter in temper, work less well and less willingly than usual, get untidy or slovenly—in a word, degenerate mentally and bodily—inquire of the mother as to the home conduct and temper. Ask particularly how the child sleeps; whether she complains of headache or limbache; whether her food is sufficient. 3. Among the incidents of school life apt to be injurious in the way we are considering, there stand out prominently (1) written examinations, (2) moving into higher classes, (3) work in arithmetic, especially when the sums are too difficult or ill-explained, and (4) punishments, particularly punishments or admonition before the schoolfellows. 4. The best index of muscular infirmity tending to St. Vitus' dance is the hand. Face mobility may be mere nervousness, and the tongue may be tremulous by nature. The hand test is infallible and is thus applied: Bid the child hold up both hands open, with extended arms and palms toward you. If this is done steadily, both hands upright and both alike, nothing to choose between the positions of the two, then the child has not, nor is it near (before or after) St. Vitus' dance. You may confirm this test by another: Let the child place its open hand upon yours, palm to palm. Looking then at the backs of the child's hands, observe whether the fingers and thumbs (and especially the latter) repose naturally, without tremor and without restraint."

PRESIDENT'S ADDRESS.*

JAKOB BOLIN.

Ladies and Gentlemen: At the time of my last annual address† our society had a membership of 72. During the year which now draws to its close 7 new members have gained admittance, while 13 old ones have withdrawn their names, three of them to enter the newly organized Hudson River Society. Our present membership is therefore 66. This is not a very brilliant showing considering the great number of persons directly engaged in physical education, and the still greater number who ought to be vitally interested in our work. Still, there is no cause for pessimism. We should only be stimulated to greater effort to make our society a factor of importance in the educational life of our great city.

It is especially to be deplored that some of the foremost men in the profession have not considered our work of sufficient value to induce them to join our ranks. They should consider that if our efforts give few results, these results might be greater if they themselves assisted. We need them. May our work in the future be such as to make them feel the need of us.

I shall take the liberty to suggest some changes in our mode of working which I believe would make the society of greater importance.

Let me first call your attention to the fact that the executive committee, upon whom falls the work of moulding our policy, has sustained several serious losses during this year. First came the resignation from the committee and the society of two prominent pedogogues, Superintendent Wm. H. Maxwell and Dr. M. P. E. Grosman, the one because of pressing duties in his official position, the other because of failing health, which necessitated his moving to a milder climate. Then illness deprived us of the coöperation of our first vice-president, Dr. M. T. Bissell, who, likewise, on physician's orders, was obliged to leave the city, and during the fall two other members were unable, for quite a time, to take part in our labors, and sent me their resignations, which I, however, prevailed upon them to withdraw. Not only has the executive committee suffered, but through it also the standing committees; besides this, the chairman of the third standing committee, Miss J. H. Bancroft, has been absent from the city because of illness. To avoid in the future such serious interference with the smooth running of affairs and the abandoning of plans when once laid, as such a series of accidents naturally means, I suggest that you authorize the executive committee by a resolution this evening, to immediately fill any office with new incumbent as soon as vacancy may occur.

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* **Read at second annual meeting of the Physical Education Society of New York and vicinity, December 15, 1897.**

† **Review for March, 1897.**

In accordance with our by-laws, four meetings have been held during the year. At the February meeting there was a discussion on "Athletics in preparatory schools and women colleges." At the April meeting papers were read on "Outdoor gymnasia and playgrounds," while "History of physical training in New York and vicinity" was the subject of four papers at the October meeting. The paper today will treat of "Exercise during adolescence."

A year ago I said: "If we are imbued with the idea that this society is created for action, not for talk; that it is a combination of earnest men and women for the consideration of questions which cannot be solved off-hand, but which require careful study; that it is no mere debating club where one may enjoy the sound of one's own voice, but that it will endeavor to be a scientific body....; if these feelings are prevalent among us, it is safe to say, not only that the future success of the society is assured, but that it is already a success."

Circumstances such as those which I have mentioned have made it difficult for us to act. We have talked instead. That should not be the case in the future. I hold that the future papers should be far more definite and technical, always be followed by discussion, and if possible such discussion to culminate in a resolution expressing the opinion of the society, and finally the executive committee should be charged with crystallizing this opinion in some action; as, for instance, urging school officers and others to take cognizance of it. Such a plan requires, however, more time than the by-laws give us, and I therefore suggest such change of these as to enable us to hold more frequent meetings. I believe that the benefit to us which would accrue, would also draw to us a greater number of members.

It may seem to you that such a change must necessarily increase the burden upon the executive committee. But I have already proposed one means by which to strengthen that committee; and as the preparatory work for such papers would to a great extent be done by the standing or by special committees, I believe the work would be more evenly distributed than at present. There is also another side to the question. At present the standing committees shall report at the annual meetings. There is then no time for discussing their reports. It would be better to set aside one meeting for each of these committees to bring up such matters as come within their respective spheres. This plan has been discussed in the executive committee, and consequently the second standing committee took charge of and prepared the programme for the October meeting, with the result that we got a picture of the historical development of physical training in our vicinity which in completeness of detail and viewpoints surpassed everything which had ever before been presented. It was the intention to have an extra meeting during November under the auspices of the third standing committee, for which arrangements were begun, when the protracted illness of the chairman prevented its fullfillment.

The relation of our work to the public school system is a subject which I cannot but urge once more upon you. The executive committee had decided a thorough study of it by a joint committee of the first and third standing committees. Like other plans it failed because of half the members being incapacitated. You will this evening receive a communication from the national council on the subject, and I hope that that will result in action on your part. We have public school gymnastics in the greater part of our territory. What do we know of it? Is it satisfactory considering the difficulties to be met? Could it be improved upon? If so, how? The public school gymnastics is or should be the most important work. We should help it along, advising and criticizing. We should support the officials in charge against attacks due to ignorance or worse. We should ourselves ruthlessly point out their errors.

The football season is just over. With it there have appeared the perennial charges against it as a degrading, brutalizing, demoralizing sport, and you know that legislative prohibition of it has been demanded in several parts of our land. We may, perhaps, sooner or later, expect similar demands in this State or city.

Are we ready to fight for or against such endeavors if they appear? If not, we should be. I cannot let this opportunity pass without registering my personal opinion in this controversy, especially as I am thoroughly convinced that the opinion is shared by a steadily growing number of educators.

I deplore deeply the numerous bodily injuries caused by the game. I believe they are too frequent and too serious. I believe that measures should be taken to prevent their occurrence. They are a bad, a very bad result of the game as played. But one must not get hysterical over them and allow sentimentality to run away with judgment. If the hygienic and educational value of the game is as great as its advocates maintain, then I hold a few hundred contusions, a score of dislocations, a dozen fractures and a few deaths each year is not too great a price for the nation to pay for it. A few individuals suffer but the nation reaps the benefit, and the game should go on as hitherto. I hold, however, these premises to be false. I deny the great hygienic and educational value. I assert that there are evil results outweighing the desirable ones, even if you overlook the traumatisms. I cannot be made to forget that the game is not, and will never be, suitable for the great mass, but for the physically excellent ones for whom training is comparatively unimportant. It is said to develop courage. Yes, that is true, but courage of a low order, courage which makes you fall upon your opponent to crush the life out of him in order that he shall not do likewise to you. It is said to generate self-control. I see frequent statements that presumable gentlemen resort to fisticuffs and kickings and are ruled off from the field. I consider that lack of self-control. I am ready by word and deed to wage war against football, to have it abolished altogether or so radically changed as to have little semblance with what now goes under the name. I should hail with delight the prohibition of it by our college and school authorities. But as long as such prohibition is not forthcoming, as long as the majority of our best thinkers on education have an opposite opinion from the one I entertain, it would be the height of impertinence and conceit to endeavor to force my opinion upon the community by legislative act. Shall we allow our aldermen, our assemblymen, our governors, who know nothing of the merits of the case, to sit in judgment upon a question that the experts consider beyond their ability to answer? We must not allow our prejudices to carry us too far, but in case an endeavor should be made to enrich our statutes with still another law transgressing on individual liberty, we must stand together and defend the right of the educators as final arbiters of educational questions.

Our society has lately joined with the metropolitan association of the A. A. U., the New York district of the Turner Societies, the Athletic League of the Y. M. C. A., the Interscholastic Athletic Association and the Social Reform clubs in work to provide open-air gymnasia and playgrounds. A memorial has been addressed to the board of park commissioners regarding the equipment of a plot of land already designated as a playground. As your representative I have signed this memorial even though I do not fully agree with all the details. The ultimate object of the coöperation of these various associations is to have the whole city studded with similar places for health, education and recreation, and to secure one large centrally located open-air gymnasium and playground, for which Blackwell's Island has been suggested.

Columbia University has hitherto been lacking in gymnasium facilities. With its removal to the new site this drawback is to be set aside, and already is the director appointed. The high standing which the university seems likely to gain and maintain in the educational life of our nation, makes this position one of the most important ones in the country. Great duties and grave responsibilities will fall upon Dr. Savage, and most heartily we wish him success—not merely as the medical examiner and general supervisor, nor as drill master, but as one who has the opportunity to raise our college gymnastics far beyond their present level.

In behalf of the whole executive committee, I thank the society for the past year, and assure the new officers of our hearty coöperation at any time they may need us. At the same time I beg to express my appreciation of the kindness of my colleagues on the executive committee which has made my duties light.

THE PSYCHOLOGICAL ASPECTS OF PHYSICAL EDUCATION.*

JOHN M. PIERCE.

WHEN we begin to think about it, we see that we are parts of a vast mass of matter, that our bodies are moving parts of a material world. By far the greatest part of this mass is dead matter, moving according to the simple laws of physics, and forming simple chemical combinations. A much smaller part of the mass is organized into the more complex chemical forms of plants. A yet smaller part has taken on the still more complex forms and constitution of animals. In this series is a gradual and continuous concentration of energy. The chemical force of a large mass of earth and air enter into one plant; many times the bulk of one animal is required in plants to support it. The life and energy of the human body are a part of the life and energy of the material world of which the body is a part. In the complex and unstable chemical combinations of the tissues of the body, a comparatively large amount of force has been stored up, and just so much force can be got out of them again.

Through that exceedingly complex and unstable tissue which we call nerve, the parts of the body are united with each other so that the body acts as a whole, and through the nervous tissue is the body united with environment, so that we respond to changes about us at a considerable distance and with nice discrimination. This action and reaction of the nervous system under stimulation from other tissues of the body and from without, are the causes which produce the form and the function of the nerve. The energy of our movements, and equally the adaptation of these movements to our environment, are due to purely material causes and need nothing else to account for them.†

Parallel with those nervous changes, there arises an entirely different existence, a consciousness. It is impossible for us to conceive of consciousness as developing from anything material, or as being joined to anything material in causal connection. All we can say is this: given a brain which is functioning in a certain manner, and consciousness is there. There are no scientific grounds, either physiological or psychological, for the theory that there is reciprocal physical action between mind and body. Changes in the brain are accompanied by changes in consciousness, but all the details, the differences, the variety, the specific qualities, the properties that make our sensations and perceptions different from each other and from those in other individuals, lie in the brain, and are *mirrored*, as it were, in consciousness. Consciousness *knows* changes in the environment, as they affect the brain, and *feels* them as pleasant or painful, according as the nerve processes act on the one hand smoothly and normally, or on the other hand in such a way as to hinder the nervous currents or to destroy the tissue. While we must be careful not to let a metaphor take the place of a fact, the relation of consciousness to the brain may well be expressed in this way: it is as if at each moment consciousness were reading off the state of the brain. In this relation, priority and continuity belong to the brain; to produce an effect in consciousness, its brain must first be influenced; to have any such effect reproduced at a later time or remembered it is the brain and not consciousness that holds the impression.* We think of anything only because something corresponding to that thing has already happened in the brain; and we shall think of that same thing again in memory or imagination only because the part of the brain which was active on the previous occasion is active again.

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* Read before the Boston Physical Education Society, January 13, 1898.

† Münsterberg: Beiträge zur experimentellen Psychologie. Royce: Spirit of Modern Philosophy, chapter on Physical Law and Freedom.

Nothing can reach a consciousness except through the brain; but for the physical connection between men, they would be as completely separated as if they lived in different planets. Only what can get to the brain and be registered there can get into consciousness. All education and social influence must be focussed upon the brain, in order that mind may be reached and influenced. Speaking empirically and taking a surface view, we talk of the influence of body upon mind and of mind upon body. When we are compelled to state what we mean, it resolves itself into this: the brain is the centre towards which converge all influences from the environment upon the body, and from which irradiate all impulses which produce movements at the circumference; and the mind, in the form of consciousness, undergoes parallel changes, which we term sensations, when in their most immediate and isolated form,—perceptions, when we refer them to an object,— conceptions when a number of similar objects have overlapped each other and resulted in a generalized notion, as it were, a composite photograph,—volitions, when the impulse to the movement of a muscle affects consciousness before it reaches and moves the muscle*—memory, when the movement of a previous occasion is reproduced or imitated,—imagination, when parts belonging to different experiences are excited together so as to form a new combination. In the sphere of empirical science and practical education, then, and avoiding all metaphysical considerations, the influence of the mind on the body becomes the influence of the brain, in its highest centres especially, upon the rest of the body; and the influence of the body upon the mind becomes the influence of the rest of the body upon the highest centres of the brain.

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* James: Principles of Psychology, chapter on memory.

The one road to and from the mind or consciousness being through the brain, what, then, are the roads to and from the brain? If we look at a skull, we have the answer. We find openings for the blood and the nerves, including the spinal cord. The first in order and importance in building up a brain is the blood, the "liquid flesh" of the body. Though the brain of a man is but one-thirtieth of his body in weight, it calls for one-sixth of the blood in the body. It has been likened to a sponge soaked with blood. Almost the whole of hygiene is concerned with the manufacture and distribution of the blood in the body. This is equally true of mental hygiene in the direction of the attention, habits of study, sleep, excitement, worry, etc. But it is not the blood that has developed the brain. What accounts for the brain in one part of the body? The development of the human individual is too rapid for us to see the causes. We must look at the evolution of animal bodies. The lowest forms are globular, without special parts or functions. The development of a mouth in a particular part made it necessary that the animal moved with that part in front, bringing about an oblong form, with the mouth at one end. Near the mouth developed the special organs of sense, first taste and smell, later sight and hearing. The movements of the animal, being for the most part caused by the demand for nutrition, whatever nervous system there was grew up in associating the organs of motion and locomotion with the organs of sensation. The chief interest of the animal was food; whatever consciousness the animal may have had seems to have been limited to the sensations most closely connected with its food. But this same nervous organ that felt at a distance through smell, sight and hearing, would be exercised in all the conduct of the animal in relation to its environment. Consciousness, such as the lowest animals have, is probably no more than dim sensations distributed over the body in various centres or ganglia. It seems that the predominance of the head-ganglion has concentrated consciousness more and more to itself, after the other centres had come to perform their functions automatically or habitually. This process has been going on through all the development of man. He has added an immense number of nerve-elements and associations between them by functioning of the brain in what is called sensori-motor experience. In this natural education, there is no separation between physical and intellectual. Only so much of the world outside is known as is needed in directly influencing the conduct; and action with reference to the world is closely associated with such knowledge. Action upon the body, and reaction upon the environment, or in other terms, knowledge and conduct, are kept in close connection, because the currents from the sensory organs through the brain to the muscles are the shortest and most direct possible. This is expressed psychologically by saying that the attention is concentrated upon the external environment, by which the sensations are produced and to which the animal must adapt himself, in order to survive. Self-consciousness means that the attention is directed to the body, instead of to exernal objects. Fortunately for themselves and for us, the earlier and lower animals were not self-conscious. They did not analyze their bodies into the limbs and parts moving in such and such a manner in a particular succession. Those whose movements corresponded with the environment,—in finding and catching their food, in escaping being eaten by others,—those survived, and succeeding generations beginning with the well-established reflex paths of nervous connection between stimulus and movement, were enabled to add new associations and adapt themselves to ever wider and more complex environments.

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* Münsterberg: Die Willenshandlung.

As the brain is developed by sensori-motor action, it acts in turn in controlling the body, and we have in this what is so often spoken of as the influence of the mind upon the body. The brain is the centre of the reflex arc very much complicated. The most direct result is what is called inhibition on the neural side, reflection, hesitation, etc., on the side of consciousness, or self-control from the ethical standpoint. It is merely a lengthening of the current and perhaps turning it into an unusual channel. This inhibition of action for a while often has the effect of producing a greater exhibition of energy when the inhibition is removed.

The development of the nervous system so that we can do anything at all complicated depends on the formation of what is called the hierarchy of the nervous centres. Heredity, experience, habit, memory, are all one thing, due to the nature of nervous tissue, by which it learns to be and do anything.* It is only by making the largest part of ourselves unconscious automata that we have the nervous machinery ready to obey the highest centres which are being adapted to the newest and most complicated environment. It is hardly necessary to say that we are at the best only partially adapted to the world at all its physical, social and spiritual points.

Man is naturally not self-conscious. The infant begins his independent life not at the beginning, but with the inheritance of ages of sensori-motor action. We talk about heredity as if it were a matter of a few generations back. The family discuss *where* the child got his characteristics; it is agreed that he has his mother's mouth and his father's nose. The vastly more important facts that he has inherited any mouth and nose at all are forgotten; these are not things of today or yesterday; we owe them to that heredity that reaches back through the ages of animal development, a heredity in which one organ and function after another have been added to and associated with those already established. In the infant, certain of these organs are at birth already knit together by nervous paths, and their functions are performed unconsciously or reflexly. Stimuli come pouring in through every sense and from the vital organs; in the plastic brain, these currents move at haphazard, resulting in the indefinite and general movements of the infant called "microkinesis."† But these movements leave traces in the brain, to which correspond what are called "muscle sensations."‡ It is through these that the infant gets control of his body and limbs. But these are not in his consciousness, neither the sensations nor the body. It is the object in the environment on which his attention is riveted.* Imagine an infant lying in his cradle and over him a ball is hanging within reach. Supposing he has got so far that he will move his hand towards an object that strikes his eye. If he has had no experience in that particular motion, he will get his hand to the ball the first time only by accident. The visual centre in the brain corresponding to the ball is actively stimulated and at the same time the motor centre corresponding to the movement of the arm towards it will be stimulated and registering traces from the various innervations or nervous impulses that bring the arm into the various positions. Finally one movement will succeed in reaching the ball. The muscle sensation corresponding to that movement will be associated with the sight of the ball in a peculiarly lively manner, to which the mental correlate is the satisfaction felt in gaining his object. This feeling of pleasure seems to be the psychological side of the more intense and spreading movement in the brain; it is as if under this excitement the paths of association were welded together more durably. The proper movement is thus associated with the ball, and on the next occasion, the hand may go directly to it.

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* Hering: Das Gedächtniss.

† Francis Warner: Report to the British Medical Association on children in the schools of London.

‡ James: chapter on the Will.

What is there now in this experience of the child? Is it not education in the most complete sense? He is developing the senses of sight and touch, and correlating with these the sensations and movements of muscular adjustment; and from the combination of all these, he is forming the idea of the object which he learns later to name "ball." If the child had to devote his attention to his own body or the working of his own muscles, he would be the loser, both on the sensory and motor side, for he would fail to learn the properties of the ball and he would also fail to learn to adapt himself to a moving environment. But that is not all; the feeling of pleasure or pain is surely at least half of the life of consciousness. It is only when a child is in pain that his attention turns of itself upon his own body; in pleasure, he is always thinking of the object that gives him the pleasure. When the child later engages in a game of rivalry with other children, using the ball between them, the process is psychologically the same, with the increased pleasure derived from the competition.

Is not this illustration of the child with the ball a type of all completely correlated and well-balanced education? Should not all elementary education endeavor to keep such a unity of mental and physical as far as possible? Should not play and games, the facing and marching evolutions of military drill, apparatus-gymnastics as far as they would be both hygienic and interesting, manual training in its various forms of writing, drawing, painting, modelling in clay, wood-work, sewing, cooking and the other occupations of domestic economy, speaking, reading and singing so practiced as to develop the lungs, and vocal apparatus,—should not all these be looked upon as physical training in its essential character and aims? If we could have these, would they not be enough for all the needs of the child? Is a special form of educational gymnastics needed as an introduction or supplement to these? Is there anything more easy and natural to the child than play in which he is continually making fresh efforts to do something to surpass some one, or than occupations in which he is making something of which he understands the use? And can you imagine any gymnastics more educational than that, if only the child could get enough of it and in the proper proportions? And is not this the reason for formal, free gymnastics? Are they not, whether Swedish, German, or American, pedagogical in this sense chiefly that they are capable of being adapted to the school limitations as to space and time, to the necessities of class management, to the pecuniary resources of the school, and is not their chief function hygienic and corrective, rather than educational in the sense of building up a psycho-physical organism which will be useful in the general experiences of life?

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* Fitz: Psychological Aspect of Exercises with and without Apparatus, in Proc. of A. A. A. P. E., of 1893.

There is another very important psychological distinction between the natural physical exercise of a child and class exercises in a system of elementary movements. Take again the illustration of the baby and the ball. That exercise of his is not only a unity of physical and mental in a sensori-motor process; not only is his attention directed outward upon the ball. But, moreover, the one thing that has interest and meaning to him is the unity of the process of catching the ball, however that may be expressed by us. Certainly it is not any analysis of the ball into its properties, or the analysis of his own action into its fundamental positions and movements, or into the parts of the body or muscles exercised in the process. The uses of the ball, what he can do with it, that is what the ball and the exercise mean to him. You may analyze all the movements he makes with the ball into a comparatively few fundamental, elementary simple movements and their variations, and arrange those in a series in the most perfect order of progression, and what have you then? Have you not a science of kinesiology or muscular movement for your Normal, Technical Schools of Physical Training? To those who are making a professional study of this science, the careful, exact, laborious drill in these movements may mean a great deal, but how much do they mean to children? If they do not take hold upon the interest and enthusiasm of the children as much as other forms of physical exercise, should they not always occupy but a subordinate part in his physical education?

The preceding considerations have been presented for the purpose of suggesting to you that the energy which moves the human body is a part of the energy of the physical world, and comes from no other source; that this energy manifests itself in its most complex and broadly adaptive form in the nervous system, particularly in the higher centres of the brain; that the same action of natural selection which has formed the brain has preserved those brains that were best adapted to their environment; that consciousness, or mind in its empirical manifestation, is not force but cognition, knowing and feeling; that the only connection between individual consciousnesses is physical; that the only road to influence the mind is by way of the brain; that the ways to influence and build up the brain are by the blood, or that of hygiene, and by the sensori-motor paths, beginning with the senses and ending in muscular movement; that this natural process by which the brain, and hence the mind, has been evolved, is most probably the normal process to be followed in formal education; that the activity which gives pleasure is the most effective in developing the brain; that formal exercises composed of elementary movements, with reference to the position of the body, are important as hygienic and corrective, rather than as educational exercises; that analytic exercises may be a necessary part of a technical training and at the same time least adapted to childhood; that all the school work should be regarded as physical education, as well as intellectual, and so pursued that it will all contribute to the aims of physical education.

OUT-OF-DOOR SPORTS FOR COLLEGE WOMEN.*

HARRIET ISABEL BALLINTINE.

The subject of out-of-door sports for women is such a broad one, I have thought best in the short paper I have prepared, to restrict myself to one phase of the question, that of out-of-door sports for college women. Neither have I taken into consideration the women under a doctor's care, or in any way in need of especial gymnastics, but only those in a normal physical condition.

In the physical training of girls, the most important thing to accomplish is to establish in each individual a fixed habit of exercise. Unless one is familiar with the habits of girls, it may be difficult for them to realize how very little exercise a growing girl usually takes if left to her own inclination.

One can hardly imagine a boy on entering college making the following statement: "Oh, I never take any exercise, I never have any time for it; I haven't walked a mile in over two years; I have been so busy preparing for college; I have always driven back and forth from school."

On entering college, all of our students are questioned in regard to the amount of exercise they are in the habit of taking, and while in the last few years there has been some improvement in this respect, yet it is a matter of surprise that girls have been able to attain their present standard of health, considering their lack of systematic physical training and their unhygienic conditions of life.

Among college women we have three classes to work with: first, a very small minority who are enthusiastic over their physical development and keep the therapeutic value of their exercise constantly before them; second, a large number who will exercise if the work is pleasing, but who are very easily bored, and another body of students intensely interested in having their friends and classmates make a record on the athletic field, but who are themselves too physically indolent to take an active part in the games.

* Read at Bridgeport, P. E. S., April, 1897.

In many of our colleges, all out-of-door work is optional; it becomes, then, an important question to decide what forms of exercise are best fitted to arouse an interest in all, and thus benefit the greatest number. The growing demand among students and teachers for exercises in which there is the element of play cannot be overlooked, and while not underestimating the educational value of the day's order for college women already under severe mental discipline, the advantages of purely recreative gymnastics are inestimable.

No one will question the great benefit to be derived from exercising in the open air and sunlight compared with the same amount of physical work performed indoors, but unless some special effort is made in the direction of organized sports, the amount of time that the majority of students will spend out of doors will not be enough to overcome the pernicious effects of a sedentary life. Walking, unless one has an unlimited amount of time to indulge in long tramps, does not furnish vigorous enough exercise, and is often wearisome and monotonous.

The bicycle has done more for women than any *one* out-of-door recreation, as it is accessible for the greatest number in all classes of society. Whoever has experienced the feeling of exhilaration and physical well-being that comes from judicious riding, will become an enthusiastic advocate of the wheel because of the mere pleasure they find in it, an incentive to exercise that is most desirable.

Competitive sports are of much aid in stimulating interest and effort, and where women are so fortunately situated as to be able to play basket ball out of doors, there is no form of exercise more desirable for them. Besides the thorough relaxation and physical development, this game has other advantages. Of great value is the training that enables the player to think quickly and respond instantly with decided action. It gives an opportunity for the exercise of self-control necessitated by the strict rules of the game prohibiting all rough play. Personal feeling must be disregarded in the "team," rather than individual play, which is an important feature of the game. It gives the most vigorous exercise in a short space of time, and as the average college woman is somewhat limited in the hours she can give to exercise, this one feature in itself is of value. But above all, the discipline of participating in games which are governed by strict and definite rules is an excellent thing for girls.

So far, we have considered only a few forms of sport which are already recognized as holding an important place in the physical training of women. Last year we brought upon ourselves some criticism from our colleagues, and much ridicule from the press, by introducing track and field athletics.

Mind and Body, in speaking of this, said: "We are in no way surprised to learn of a field day at Vassar College, but we lament it as one of the outgrowths of a wrong appreciation of what physical training should do and be. To accomplish by education the full development of the feminine physique needs to some extent the choice of suitable material."

Because of this and similar criticisms, it may be well to speak of some of the conditions resulting in this special feature of our out-of-door work.

Ever since the introduction of basket ball, which holds a prominent place among our recreations, there has been a growing interest in all forms of athletics, and the students excelling in this game become desirous of competing in other directions. Track and field athletics were introduced by the students themselves to meet a demand for them. It was an experiment, and so far has proved a satisfactory one.

Training for these events has added greatly to the interest in all of our out-of-door sports by all classes of students. On the afternoons when the teams are practicing, "the circle," as our athletic field is called, becomes the most popular spot on the campus.

We do not advocate intercollegiate contests, or expect that other colleges will necessarily follow our example, but that we do endeavor to be most careful in our "choice of material," can be shown from the following rules and regulations imposed by the college authorities and athletic associations: Any student entering for track and field athletics must have passed a creditable physical examination by the gymnasium director; have had her heart and lungs examined by the resident physician; have a written permission from parents or guardian, saying they are willing she should take part in the games, and come up to a certain standard in her work—for no deficient student is allowed to compete on "Field Day." Last year, at the Harvard Summer School of Physical Training, a course in athletics was offered to women. This course consisted of both theory and practice, and about fifteen availed themselves of the opportunity for instruction in this line of work, spending in addition to the lecture, an hour at least in daily practice throughout the entire course of five weeks. The success of this particular department of the school, and the number keeping up an active interest in athletics, gives conclusive evidence that there is a growing demand among women for this training. While there were some in the class who worked for pleasure, many were teachers of gymnastics who had found it necessary to become acquainted with practical athletics because their pupils demanded this knowledge of them. In regard to the physical effects of these sports, the general verdict of the class was that they were no more fatiguing in any way than many forms of exercise to which these women had been long accustomed.

In many of our normal schools, and in fact in most of our gymnasia, women have practiced what is termed "heavy gymnastics" for years. There seems to be no physiological reason why a woman who can perform difficult and intricate exercises on the horse, vaulting bar or boom, could not jump hurdles, or, that a girl capable of riding forty or fifty miles a day on a bicycle, could not be trained for the 100-yard dash should she be inclined to that form of sport.

In the training of women, it is not physical overwork that is to be guarded against so much as nervous exhaustion, worry and the depression coming from general unhappiness. Girls require a certain amount of healthful excitement, and if not carried to an extreme, what could be more beneficial than that their exuberance of spirit should find an outlet in preparing for events that will necessitate an hour or two of daily exercise in the open air, even if their style and records might cause some amusement to the masculine athlete?

Comparing the records made by women with those of men is absurd. If women are to practice athletics, they must be content to establish their own standards. It may add to the interest of the feminine athlete to find that her record for running broad jump is eleven feet nine, while Westcott of Yale has twenty-one feet five to his credit; but those most interested in her physical welfare do not consider records, but rather the physical and moral advantages she must necessarily receive from a systematic training in athletics.

The fact must not be overlooked that there are some objections to girls engaging in sports that until very recently have been regarded as only suitable for boys; objections which to some of us may seem unimportant, but to others, very grave indeed. A frequent criticism, and perhaps a just one, is that girls indulging in active, competitive games, especially if they enter into them with genuine class spirit, have a tendency to become hoidenish. • This same objection was made by a college student last year, herself a devotee of basket ball. She said from her own experience she found that the influence of unrestricted dress, the general relaxation and excitement of the game, resulted in a certain freedom of manner which she considered objectionable. In this one instance the fact that the student recognized this tendency and regretted it, was proof that in her own case it would not be allowed to become serious. But looking at the subject from a broader point of view, if refinement and quietness are but the results of weakness and inactivity, and a pronounced manner must necessarily be the outcome of a more vigorous life, we must be willing to sacrifice the former feminine attributes for the more precious possession of good health. This natural reaction from the restrictions of a confining life need not be regarded as seriously alarming; but there is this criticism, and it may serve to impress upon those who have charge of the physical training of women the importance of eliminating, as far as is consistent with the objects of their games, all possible roughness. The most serious objection to be made is that of physical injury, but with strict rules in regard to the physical standard necessary for the competitors, this objection can be met by allowing only those to enter for the more vigorous sports who are in a normal condition, for of course the capacity of the individual must in all cases determine the exercise.

In colleges for women, where there is always more or less supervision over the students, it can be a comparatively easy matter to regulate their athletic sports. The objects to be obtained by the physical training of women are, primarily, better health, more energy, will power and physical courage, together with recreation. If any of these desirable objects are to be gained by the systematic practice of out-of-door sports, we must welcome any innovation which will aid in giving them a permanent place in our scheme of education and, after all, it is not so much the special kind of exercise that is most important, but the systematic performance of it, and the spirit which controls it.

But the highest aim of all our physical work should be, to cultivate such correct habits of life that the coming generations of women may be provided with a perfect physique, and thus be capable of meeting successfully all demands made upon them, whether mental or physical.

REPORT OF DIRECTOR OF PHYSICAL TRAINING.*

ALICE BERTHA FOSTER.

To the president of Bryn Mawr College,

Madam: This year's work in physical training began October 2, 1895, with physical examinations which occupied the first five weeks.

As usual the exercise of the first month consisted of out-door sports, tennis, basket ball, golf, hare and hounds, etc. The interest in bicycling showed a very great increase. Stables have been provided, and nearly one hundred wheels were in use during the autumn. This is very satisfactory, as the exercise has been strongly recommended by the department.

Class work in the gymnasium began in November and ended in April as usual in point of time, but a marked advance has been effected in its method of application.

During the past two years a strong and steady effort has been made to raise the Bryn Mawr gymnasium to the standard recognized as best by the National Association of Leaders in Physical Training. As before reported, during the year 1894-95, the office methods of record keeping, tabulation, etc., which were instituted at the founding of the college, were recast according to the newest proved and accepted system. This involved much labor, but has been satisfactorily accomplished, and in the present year the reform has been carried further into the matter of class grading. The method of classification by "strength-weight index," as presented to the American Association for the Advancement of Physical Education at its Philadelphia meeting in 1892, was applied to the three lower classes, as was also the method of class grading by "total strengths." "Total strength" is the sum of all the strength tests, and is technically called "t. s." The "strength-weight index" is a figure showing the value of "t. s." when modified by its relation to the size of the individual, and is called "s. w. i." Careful comparison was made and the correspondence proved fairly good, but "s. w. i." was decided to be the better basis for class division.

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* Reprinted from the annual report of the President of Bryn Mawr College 1895-96.

By this test these three classes were separated into "weak" and "strong" divisions, and appropriate class work was given to each. The senior class was not so tested, because it was thought neither necessary nor wise to divide the class. The results of this comparison were interesting and encouraging, as they confirm the wisdom of the system of physical training now followed. Its aim is not to train special athletes, but to raise the physical standard of the mass, to insure that all shall have exercise sufficient for health, to make the weakest gain most, as they need most, and to benefit each student, not the picked students alone.

The use of averages has been discarded, as it is generally recognized that they are practically valueless in this work, and all comparisons are now made by "means."

The "mean t. s." of these classes was found to be as follows:

Freshman	230+ kg.
Sophomore	262— kg.
Junior	266— kg.
Senior	273— kg.

This shows the steady increase from year to year, which proves the value and success of our present method. The element of natural growth is involved in the Freshman year, as shown by large gains in weight and girth of hips, and (usually small) gain in height; but its absence is proved by the absence of these gains in the upper classes.

It seems well here to define what our plan of work is, and to add a few words of general explanation. Our gymnasium is, and always has been, conducted on the Sargent system. The basis of the Sargent system is the proposition that each individual should be considered separately, his defects noted, his needs studied, and his possibilities ascertained. His exercises should be directed from this standpoint. In almost every case some form of class work is desirable, and also some personal corrective or developing work. The class work is chosen from one of the two great national gymnastic systems, German or Swedish. The individual work is prescribed to be done chiefly on certain pulley weight machines, almost all of which were devised or adapted by Dr. Sargent himself.

Both German and Swedish class work are taught in the best normal schools of physical training, and both are used in our gymnasium. Broadly, one may say that Swedish free exercise is given to the weaker, and to the more ignorant, for its excellence in discipline, and accuracy in simple movements. German class work is given to the stronger, more skillful, and better trained, as it represents more advanced work in muscle coördination, nervous control, and skill and rapidity of action, and gives most ease in handling the body in new situations.

Accordingly, the weaker sections of Freshman and Sophomore classes were given Swedish work under my assistant, a graduate of the Boston Normal School of Gymnastics; the stronger divisions were put at once on German work. This conclusion, drawn from the "s. w. i." for the Freshman, was at once justified by the comparison of personal histories and vital examinations; since while it appeared that a few on account of organic deficiencies must be relegated to the "weak" division, yet almost all those selected by the "s. w. i." for the strong division and the more advanced work had had previous gymnastic training in preparatory schools.

Both divisions of the Juniors were given German work.

The Seniors were not divided, and were all given Swedish work, because being simpler and less a training for nerve-centres it need add nothing appreciable to the nervous effort of the hardest college year, although supplying the hygienic need of tissue waste and heart stimulant. This is merely a concession to the acknowledged pressure of the Senior year, recognized in other colleges by a remission in gymnastic requirements, but that the advantage made under this system is inferior is shown by the relation of mean "total strengths" of the four classes compiled from the measurements taken in April and the measurements of the same students in October, 1895.

	October, 1895.	April, 1896.
Freshmen	241.4 kg.	272.1 kg.
Sophomore	258.3 kg.	287.7 kg.
Junior	277.2 kg.	292.5 kg.
Senior	275.0 kg.	287.7 kg.

In October the Juniors, 277.2, and the Seniors, 275, had each had one year of German work after more or less previous Swedish work. In April it will be seen that the Seniors taking Swedish drill only, have but just reached the mean of the Sophomore, while the Juniors, on German work, have surpassed them by a larger margin than in October.

As this sharp division and distinct class work gave unusual opportunity for comparison of these two systems, I spent my Easter recess in tabulating figures from the work of the previous college year, with results worth reporting. It must be remembered that throughout this report "Swedish" means free work only, but as the supporters of that system make the claim for it that it can be used to advantage without apparatus, that justifies the comparison. It is manifestly unjust to compare Freshmen with Sophomores or Sophomores with Juniors in questions of gain, although comparison may more fairly be made in "s. w. i." or "t. s." Entering classes gain most for two reasons. The first is the increment of growth already mentioned; the second, the fact that, having had no training before, they have everything to gain, whereas a pupil after one, two or three years of training is already much nearer her own maximum. This is clearly illustrated by the mean gains in "t. s." by our four classes during this present year (1895-96).

Freshmen	30.7 kg.
Sophomores	29.4 kg.
Juniors	15.3 kg.
Seniors	12.7 kg.

For questions of gain, thus, my only safe comparison was in an accidental division of my Junior class. The class as a whole had been given German exercises, but a small group had been placed with the Seniors for Swedish drill. From each division, German and Swedish, I selected the largest gain made by any one student in each item of second measurement. The result was as follows, in the significant items:

	German.	Swedish.
Sitting height	1.6 cm.	1.1 cm.
Girth of neck	1.2 cm.	1.6 cm.
Girth of chest	3.3 cm.	3.0 cm.
Girth of chest, expanded	3.1 cm.	2.9 cm.
Girth of lower chest	3.3 cm.	5.3 cm.
Girth of lower chest, exp'd	4.1 cm.	3.7 cm.
Girth of waist	4.5 cm.	2.7 cm.
Girth of hips	—3.3 cm.	—2.0 cm.

	German.	Swedish.
Girth of arm, right	2.5 cm.	1.5 cm.
Girth of arm, left	2.8 cm.	1.8 cm.
Girth of forearm, right....	1.8 cm.	1.8 cm.
Girth of forearm, left....	1.8 cm.	1.2 cm.
Breadth of shoulders	2.7 cm.	2.1 cm.
Depth of chest	1.7 cm.	1.2 cm.
Capacity of lungs, ...	40 cu. in.	15 cu. in.
Strength of back	37.0 kg.	30.0 kg.
Strength of legs	55.0 kg.	39.0 kg.
Strength of chest	15.8 kg.	10.5 kg.
Strength of forearm, right..	8.0 kg.	6.0 kg.
Strength of forearm, left..	10.5 kg.	5.0 kg.

The greater gain on neck girth is typically Swedish and due directly to the form of exercise.

The only other measurement in which a "Swedish" student surpassed the "German" is the "lower chest," and this involves an exceedingly interesting point. In reckoning gains in girths, experience teaches that increase in adipose tissue first appears in hips and thighs. If hips have gained as well as chest and arms, as a rule it indicates that all the gains are due, at least partly, to fat. If chest and arms have gained while hips and thighs have gained little or nothing, or have actually lost, then the gain is counted a matter of muscular or postural improvement, and credited to the exercise. The latter type of changes is the rule during our winter gymnasium season, while the reverse is the case during the summer, as proved by April and October measurements. This large gain in lower chest was made by No. 278 in the Swedish class; she also gained 7.8 cm. (over three inches) in girth of hips, and 11¾ lbs. in weight, and proportionately in other measurements, showing that the lower chest gain was, like the others, largely adipose. On the other hand, the greatest gain in this item among the "Germans" was by No. 352, who lost 2½ lbs. in weight, and did not gain in hip girth.

Another piece of evidence appears in the class mean in October, 1895, wherein the Juniors, after one year of German work, appear at 5.11 "s. w. i."; the Freshmen, with no previous training for the majority, reach 4.44, while the Sophomores, after one year of Swedish work, touch only 4.38.

Another argument appears in comparing the mean gains in total strength in the two divisions of the present Freshman class during this year. The "German" division gained 36. kg., whereas those in the Swedish class gained 25.5 kg., although, as already stated, the "German" students had almost all had some previous gymnasium work, and so had passed the period of initial training, wherein greatest gains are expected.

In measurements, the "Swedish" mean gain in weight was 7½ lbs. and the "German" 8 lbs., yet the former gained 4.5 cm. in hip girth against 3.9 cm. in the "German" division, whereas the latter gained 2 cm. in chest girth and the "Swedish" class only 1.2 cm.

This relation of hip and chest girths is also well illustrated by the other classes, where the "German" division of the Sophomores, the Juniors ("German"), and the Seniors ("Swedish"), all show gain in chest and reduction of hips (the "German" classes gaining also in arm girth); while the "Swedish" division of Sophomores gained on chest, arm and forearm, but increased in hip girth almost as much as in chest, which, as already explained, implies fat.

The division into "strong" and "weak" has proved a good stimulant to ambition, and many have begged for promotion. If that was impossible, permission was sometimes given to take the work of the other division as elective, and the frequency with which this was done has made an appreciable difference in both grades and final examinations. At the end of the first semester, a few faithful workers were tested and promoted. Let me quote one case. For No. 587 I give the gains made between November 1, 1895, and February 10, 1896, 14½ weeks; also between February 10, 1896, and April 4, 7½ weeks.

I regret the absence of "capacity of lungs" throughout this report. It is due to a defective spirometer, which will be at once replaced.

Actual tests:	Nov. 1, 1895.	Feb. 10, 1896.	April 4, 1896.
Strength of back......	70.0 kg.	78.0 kg.	82.0 kg.
Strength of legs.......	78.0 kg.	90.0 kg.	112.0 kg.
Strength of chest......	31.0 kg.	34.5 kg.	36.2 kg.
Strength of forearm, rt..	24.5 kg.	25.5 kg.	28.0 kg.
Strength of forearm, l'ft..	18.0 kg.	18.0 kg.	22.5 kg.
Total strength......	221.5 kg.	246.0 kg.	280.7 kg.

Amount of gains.	In 14½ weeks.	In 7½ weeks.
Strength of back	8.0 kg.	4.0 kg.
Strength of legs	12.0 kg.	22.0 kg.
Strength of chest	3.5 kg.	1.7 kg.
Strength of forearm, right	1.0 kg.	2.5 kg.
Strength of forearm, left	0.0 kg.	4.5 kg.
Total strength	24.5 kg.	34.7 kg.

It appears that, while in two items the gain was half as much in 7½ weeks of German work as in 14½ weeks of Swedish drill, in three of the five it was actually much greater in about half as much time; and this is conspicuously so in the weak left arm, which had gained nothing during the first three months, and also in "t. s."

The fact remains, however, that Swedish work is excellent for discipline and for erectness in carriage, and therefore it is good in preparatory schools, or wherever dealing with young and growing children.

After April 14, No. 587 gave herself enthusiastically to basket ball practice, but when her tests were again taken, after some weeks, she had gained very slightly, and had lost 1.2 kg. on chest strength, illustrating that basket ball practice cannot replace proper gymnasium training, although it has its place and value.

The need for separating the weaker part of the Sophomore class, as well as of the Freshman, is shown by the "t.s." means. In October the "strong" Freshman class showed a mean "t. s." of 266.7 kg., whereas the "weak" Sophomore class reached just 233 kg., and only rose at 266.4 kg. in the April tests; 266. , however, is the test at which the Freshmen were given German work, and I consider the Sophomores, also, now ready for the more advanced form of exercise.

An informal vote was taken among those ready for the change concerning personal preference, with the result of an almost unanimous choice of German.

The question has sometimes been asked whether our strength tests tell correctly the general power of the student, and I am glad to offer proof that they do. Of the highest fourteen students in the Senior class, as reckoned in October by "t. s." eight appeared in April in the champion team of the basket ball tournament, and a ninth was lower in "t. s." only because of small physique, but stood near the head in "s. w. i."

The same team offers a reply to the question of the relation of physical education to studies, since two of these same champions won fellowships as well as athletic laurels.

Another question asked is whether the gains claimed for the gymnasium are not partly due to basket ball. The gains shown in the measurements and strength tests are not, and cannot be, since these are taken before the ball training, athletics following the closing of indoor classes. However, we heartily believe in the physical value of our games, and will credit them with part of the excellent health of our Senior class as a whole. Again, less than half the students engage in basket ball, whereas the class means are drawn from all.

As usual, the gymnasium has been open for floor work from 4 to 6 P. M., and from 8 to 10 P. M. daily, except Saturday, when the building is open to the public. Classes are held in the afternoon, and the evening hours are used for individual practice.

The measurements taken during the year were as follows:

	Oct., 1895.		Feb., 1896.		April 1896.
First.					
Freshman	66	Freshman	1		
Hearer	1				
Graduates	20				
Total	87				
Second.					
Sophomores	49	Sophomores	2	Freshmen	64
Juniors	54	Junior	1	Hearer	1
Seniors	38	Senior	1	Sophomores	51
Graduates	3			Juniors	46
				Seniors	33
				Graduates	5
Total	144	Second	4	In April	200
Brought down	87	Brought down	1		
Total in October	231	Total in February	5		

Total first measurements	88
Total second measurements	348
Total measurements for the year	436

Of these, all the Freshmen and Sophomore measurements, both in October and April, were plotted on the Sargent charts, introduced last year, showing not only the individual's relation to the normal type, but also the relation of her own successive measurements. Thus we can see both the student's needs and the degree of success effected by her exercises. These charts were shown and explained in class hours to the Freshmen, each student studying her own chart, on whose margin were written indications of her worst deficiencies and the special exercises calculated to remove them.

Prescription cards were also given in the autumn, and in the spring an informal examination given to learn the student's memory and faithfulness in regard to the explanations and directions given. More attention will be paid to this next year, and the examination will be more strict and extended to other classes.

The new chart, presented by Dr. Hanna, of Oberlin, in 1895, at the meeting in New York of the American Association for the Advancement of Physical Education, will be adopted for the entering class in October, representing a higher grade of previous training than the one now in use.

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Outside the regular class work, lessons have been given to beginners in swimming; and two elective fencing classes were formed by request. They proved too popular for as thorough work as the department wishes, and will be strictly limited in number next year. Very good work was done, however, by some members, for twelve half-hour lessons in a crowded class.

The fire brigades organized last year are in good order, and proved their real value in one incipient fire. In only one hall was it necessary to reorganize in October, the others retaining enough of their old members to initiate the new. The men's brigade has been arranged and tried, and the out-door apparatus renewed and tested.

Work on our new athletic field has gone on steadily, and we expect to use it in the autumn for bicycling, running, basket ball, and later as a skating park.

A letter has been received from the International Y. M. C. A. Training School at Springfield, where basket ball originated, asking our practice and opinion as regards modification of the existing rules, and suggesting a conference of the directors of the women's colleges. I visited the women's colleges largely on this account. I also went to the Springfield School and discussed the matter with its leaders.

I find all the other women's colleges differ from us in the matter of snatching the ball, whereas we play by the rules in use in men's colleges. The question involves a great deal more than appears on the surface. The physical risk is by no means the only consideration. I intend to give a great deal more thought and study to the question, and I hope that our students will do the same. It is not a point to decide hastily or by personal preference. I have asked our captains to study it carefully, and next year I hope that I may be able to treat the whole subject more fully.

This year for the first time each class was represented in the basket ball tournament. Many visitors attended the series, and the excitement and interest increased steadily to the end. The games were:

Freshman-Junior—won by Junior	2
Sophomore-Senior—won by Senior	2
Junior-Senior—won by Junior	1
Junior-Senior—won by Senior	2

"'96," therefore, as champions of the college, have won the exclusive privilege of adorning the gymnasium throughout the coming year with their class colors and numerals.

REPORTS FROM SOCIETIES.

BALTIMORE PHYSICAL EDUCATION SOCIETY.*

A number of ladies and gentlemen interested in physical education held a meeting Tuesday night (March 29th) at the residence of Dr. W. A. Jackson, 1214 Eutaw place, and organized a physical education association. Dr. E. M. Schaeffer was elected president and Miss Elizabeth Wright, of the Bryn Mawr School, secretary and treasurer.

It was decided to present a resolution to the city council asking prompt action in behalf of the effective introduction of physical training into the public schools as provided for in an ordinance passed in 1896. Among those present at the meeting were: The Misses Braun, Gihl and Flyborg, of the Woman's College, Miss Wright, Dr. W. A. Jackson, Jr., Dr. E. M. Schaeffer, C. F. E. Schultz and Charles W. Sultan.—*Baltimore Sun, March 31, 1898.*

BOSTON PHYSICAL EDUCATION SOCIETY.

Seventeenth and Annual Meeting, January 13, 1898.—Society met in the hall of the Prince Grammar school, the president, Dr. Clarence J. Blake in the chair. A paper on "The Psychological Aspect of Physical Education" was read by the secretary and discussed by Miss Laura Fisher, Miss Helen P. Howell, Miss Hope W. Narey, Dr. Jane D. Kelly, Dr. Sargent and President Blake. The paper led up from some general psycho-physical principles to the thesis that physical education is best attained in such exercises as adapt the individual to a changing environment by a natural and reciprocal action and reaction, that such exercise is found in games especially, and that formal gymnastics should occupy a subordinate place as a means of reaching hygienic and corrective results not attained in the more educational exercises. The discussion brought out a number of testimonials to the educational value of formal gymnastics and the limitations in the use of games.

Two interesting chairs were shown to the audience and their uses demonstrated by Dr. Sargent, the anthropometric chair devised by Dr. Hartwell for rapid measuring of school children with reference to seating, and the oscillating chair for schools, invented by Prof. Miller of the Massachusetts Institute of Technology, in which the seat and back incline forward or backward according to the position taken by the pupil.

After the annual reports of officers and committees, the following were elected officers for 1898: President, Dr. Clarence J. Blake; vice-presidents, Baroness Rose Posse and Dr. Edward O. Otis; secretary, Mr. John M. Pierce; treasurer, Miss Hope W. Narey; executive committee, Miss Jennie B. Wilson, Miss Helen P. Howell and Mr. Hartvig Nissen.

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*Not yet affiliated with the A. A. A. P. E.

The following were elected to membership: Dr. Robert W. Lovett, Dr. Douglas Graham, Dr. Charles H. Williams, Dr. J. Warren Achorn, Dr. W. S. Cummings, Mr. James H. A. Smith, Mr. N. Edwin Sanders, Miss Jennie B. Wilson and Miss Bertha P. Ames.

A seventh special by-law of the society in regard to advisory members was proposed by the executive committee and adopted by the society. Such members do not vote and are not required to pay dues, but will receive notice of the meetings, may take part in the proceedings and may serve on committees. The object of this membership is to bring into touch with the work of the society persons who are of distinct value to the cause from their position in general education or other vocations connected with physical education, but who from press of engagements and other interests cannot be expected to become regular members.

Miss Narey, as chairman of the technical committee, made a favorable report in regard to missionary work to be done by the pupils of the normal schools of physical training at the invitation of the Episcopal City Missions.

Eighteenth Meeting, January 27.—This was a special meeting on orthopedic gymnastics, held at the library of the Medical society, for which arrangements had been made by Dr. Enebuske. The following papers were read: "Gymnastics in Relation to the Correction of Faulty Attitudes," by Dr. Edward H. Bradford; "The Gymnastic Treatment of Pronated Foot," by Dr. Robert W. Lovett; "The Use of Gymnastics in Spinal Curvature," by Dr. Elliott G. Brackett. "The Relation of Strength to Spinal Curvature," by Dr. G. W. Fitz, was omitted in the absence of Dr. Fitz. Discussion was opened by Dr. Hartwell and Dr. Sargent, but on account of lateness of the hour could not be continued. Dr. Bradford and Dr. Brackett illustrated their papers by the stereopticon. This rich programme was appreciated by the society, and the audience showed by its extent and character the great regard those engaged in physical training have for successful specialists in corrective surgery.

Nineteenth Meeting, February 10.—Society met in the Posse gymnasium. The following were elected members: Mr. M. Anagnos and Miss G. Bennett, Perkins Institution for the Blind; Dr. Blanche A. Denig, medical director at the Durant gymnasium; Miss Charlotte Maxwell and Miss E. R. Deane, St. Botolph gymnasium; Miss Mary S. Macomber, Sargent Normal School. The programme had been arranged for by Baroness Posse. A paper on "The Royal Central Gymnastic Institute of Stockholm" was read by Miss Esther Porter, followed by a discussion from Dr. Richard Hogner on the practice of medical gymnastics. Dr. Fitz gave the substance of his paper on strength and spinal curvature. Dr. Enebuske and Mr. Nissen continued the discussion on "Orthopedic Gymnastics" begun at the previous meeting.

Twentieth Meeting, February 24.—Special meeting on "The Education and Industrial Training of Crippled Children." Papers were read by persons connected with the Industrial School for Crippled and Deformed Children. Miss Mary M. Perry gave a sketch of the school. Mr. Francis J. Cotting read a paper on Methods of Relief and Transportation; Dr. Augustus Thorndike one on Compensatory Education of these children. Dr. Bradford and Dr. Sargent spoke of the sociological and economical features of this work. At the close President Blake announced that a committee would be appointed to keep the society in touch with the school, and those present were invited to inspect the samples of woodwork, sewing and millinery from the school.

Twenty-first Meeting, March 10.—Society met at the Boston Normal School of Gymnastics. Following were elected members: Miss Harriet E. Hutchinson, Charlestown High School; Miss Eleanor J. O'Brien, No. Cambridge; Mr. John H. Wright, Perkins Institution for the Blind. The president announced as committee on visitation to the School for the Crippled, Dr. G. W. Fitz, Miss Helen P. Howell and Miss Mary S. Macomber. The following programme was rendered by the pupils of the Boston Normal School of Gymnastics: Gymnastic Day's Order, Junior Class; Dance, Senior Class; Volley Ball, Junior Class; Gymnastic Day's Order, Senior Class; Basket Ball, Senior Class. The building was then thrown open for the inspection of the apparatus, library and rooms.

John M. Pierce,
Secretary.

CHICAGO PHYSICAL EDUCATION SOCIETY.*

Through the untiring efforts of Mr. Kroh of the Chicago Normal School a small physical education society has been formed in Chicago. Although meeting with many discouragements, the members are determined to make the society a permanent organization, and hope soon to be in a position to become a branch of the A. A. A. P. E. The president of the society is Mr. Carl J. Kroh and the secretary Miss Blanche E. Treat of Lake Forest University, Lake Forest, Ill.

Blanche E. Treat,
Secretary.

CINCINNATI PHYSICAL EDUCATION SOCIETY.

The officers of the Cincinnati Physical Education society for the current year are as follows: President, Mr. J. C. Heywood; vice-president, Mr. W. A. Ocker; secretary, Mr. Chas. W. Tackenberg, and treasurer, Mr. E. A. Poos. The constitution designates that the meetings of the society shall be held on the first Friday of each month, excluding July and August.

Chas. W. Tackenberg,
Secretary.

HUDSON RIVER BRANCH OF THE A. A. A. P. E.

The officers for the current year are: President, Mr. H. J. Koehler; vice-president, Miss H. I. Ballintine; second vice-president, Mr. H. H. Worth; third vice-president, Mr. J. C. Neal; secretary, Miss Emma L. Mott; treasurer, Miss H. A. Gurney.

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*Not yet affiliated with the A. A. A. P. E.

There is no regular time for meeting. The meetings are called by the president and have been held alternately in Poughkeepsie and Newburg. At the meeting of the society February 12th, there was a full and interesting discussion of the question: "To what extent may athletics and athletic leagues be encouraged without endangering general physical training?" Most of those present took part. As athletics have in a measure done away with a systematic physical training in the men's colleges and Y. M. C. A.'s, a systematic training, that is, work that would give a general physical development, seemed preferrable, athletics coming in as a side issue.

The president, Mr. Koehler, of West Point, gave a very interesting paper on "Military Drill in Public Schools."

EMMA L. MOTT,
Secretary.

NEW HAVEN PHYSICAL EDUCATION SOCIETY.

A meeting of the New Haven Physical Education society was held at the residence of the president, Dr. E. H. Arnold, on Friday evening, January 14th. Following the report of committees on books, etc., the committee on current literature read clippings concerning a proposed scheme of physical training at Harvard and an extract from Dr. Sargent's lecture on "Gymnastics for Women." A report of the results of physical training at Bryn Mawr College, Pa., was also read.

After considering the circular of the national council concerning gymnastics in public schools and answering the questions contained therein, the meeting adjourned.

The monthly meeting of the New Haven Physical Education society was held at the Yale gymnasium on February 11, 1898. The minutes of the previous meeting having been read and approved and the treasurer's report accepted, Miss Ada W. Cornwell was admitted as a new member. Dr. E. H. Arnold spoke on the educational value of pain. The meeting adjourned to meet on Friday, March 11th.

ANNIE R. HUGHES,
Secretary.

The officers of the New Haven Physical Education society for 1898 are as follows: President, Dr. E. H. Arnold; first vice-president, Mr. J. E. Heaton; second vice-president, Mr. H. G. Watson; secretary and treasurer, Miss Annie R. Hughes; council, Dr. E. H. Arnold, Dr. H. G. Anderson, Dr. J. W. Seaver, Mrs. Eugene Buckman, Miss Annie R. Hughes. The meetings are held the second Friday of each month.

NEW YORK PHYSICAL EDUCATION SOCIETY.

The Physical Education society of New York and vicinity meets this year every month from October to May, inclusive, instead of quarterly, as heretofore. The January meeting was held at the West Side branch, Y. M. C. A., on 57th street, Borough of Manhattan, and despite a raging storm was attended by 25 members.

A paper was read by M. Augusta Requa, M.D., on her work in the public schools of the Boroughs of Manhattan and Bronx. This paper will be published in the REVIEW later. Miss Jessie H. Bancroft, in charge of the same work in Brooklyn, discussed Dr. Requa's paper and the liveliest discusion in the history of the local society ensued. Miss Bancroft's discussion will also be presented by the REVIEW. Six new members were elected. Dr. Watson L. Savage was appointed delegate from the society to represent it on a committee at present engaged in promoting a movement to obtain open-air gymnasia, public play-grounds, etc., in New York City.

The questions propounded by the national council in regard to work in public schools in New York were made the subject for report and discussion at the next meeting.

The programme of subjects, participants, dates and places of meetings for the year 1898 was completed by the executive committee, printed notices of which are in press.

J. BLAKE HILLYER,
Secretary.

February 16th the regular monthly meeting of the society was held at Packer Institute, Brooklyn. There were about 40 members present. The important business of the evening was the decision of the society to reduce the annual dues from $2 to $1, and to require thereafter the payment of an initiation fee of $1. Ten new members were admitted to the society.

The subject for the evening was "Gymnastics in the Public Schools of New York City," with special reference to the questions upon public school work which have been sent out by the A. A. A. P. E. Owing to the fact that the committee appointed to report on the above questions was unable to get the data into such form as could readily be voted upon by the society, the proposed action was deferred until the next meeting in March.

In the discussion which took place on this general subject, Miss Bancroft spoke encouragingly of the work in the Brooklyn public schools. While not considering the conditions ideal, she thought they were as favorable as could be expected at the present time, considering the opposition which the work met with five years ago when it was first introduced.

The board of education now gives the work its hearty support and coöperation. Four supervisors have been appointed during the past year to assist Miss Bancroft in superintending the work. The time given for exercise daily is 15 minutes. The only measurements taken are those necessary for the proper seating of the children and the only tests taken are for sight and hearing.

Dr. Requa spoke for the present system of physical education, which has only been organized since 1896 in New York City. She considered that the work was progressing satisfactorily and that it was well received by the board of education and by the general public; especially in regard to play-grounds and gymnasiums attached to school buildings has there been great improvement during the past few years, as well as in regard to the matter of adjustable seats, which are now found in all the new school buildings.

The only tests taken in New York schools are for sight and hearing. A paper written by Mr. Jakob Bolin was read, in which he expressed the opinion that physical education was most inadequately supported in New York and its vicinity. His plea was for a playground and gymnasium in connection with every school and a special gymnastic instructor. In addition, he would have a physician, whose duty it should be to examine each child and keep a record of a few simple but necessary measurements. One half hour daily he considered necessary for gymnastic exercise for children over 10; under that age play and games should be substituted.

In reply to this paper, Dr. Requa spoke of the excellent results which had been accomplished by the regular school teachers giving the gymnastic exercises, and thought that it was both impracticable and undesirable that there should be special gymnastic teachers in the public schools.

MARTHA GARSIDE,
Reporting Secretary.

The regular monthly meeting of the Physical Education society of New York and vicinity was held at Dr. Savage's gymnasium, Borough of Manhattan, on March 16th. The subject for the evening was the report of the committee on theory and statistics. The committee composed of Dr. Walter Truslow, Mr. Leibert and Miss Beiderhase presented a paper on "Physical Education as taught in the Normal Schools of this Country." The general plan of work in the various training schools was described and commented on, this comparison bringing to light the relatively strong and weak points in the teaching of each school.

A discussion followed in which Mr. Bolin pleaded for the more thorough grounding of physical training teachers in the underlying principles of physical education regardless of the special system advocated. He also spoke of the need for text-books on this subject, that students might depend upon these rather than upon their own notes taken from lectures, as these notes were often not correctly taken and misrepresented the lecturer and the subject. Miss Jessie Bancroft thought there was great need, especially for teachers having charge of public school work, of a more thorough study of methods of education and of practical psychology.

Dr. Savage spoke of his own experience in training teachers and thought the most important points were, that they should know thoroughly the technique of the work and should have a practical knowledge of handling classes and inspiring interest in their students. He thought more time should be given to such practical instruction rather than to so much theory.

After this discussion the report of the committee appointed to consider the questions sent out by the international council, was read. The committee consisted of Dr. M. Augusta Requa, Miss Jessie H. Bancroft and Dr. A. L. Barrett. There was a great difference of opinion in the society as to whether this report could be said to represent the feeling of the society as a whole in regard to the questions involved, and after a lengthy discussion, the matter was held over for the next meeting.

Dr. Savage, for the committee appointed to superintend a public demonstration to have been given in May, asked for a postponement of this demonstration until the fall, when he thought it could be more successfully undertaken. This matter was referred back to the executive committee, who have the programme for the year in charge. Three new members were admitted to the society.

MARTHA GARSIDE,
Reporting Secretary.

PHILADELPHIA PHYSICAL EDUCATION SOCIETY.

(Pennsylvania District Association, A. A. A. P. E.)

The fourth regular meeting of the society was held at Drexel Institute on Saturday, February 26, 1898, Vice-President Pertuch presiding. After the reading and approval of the minutes, the treasurer's report was read and accepted.

The future plans of the society were discussed, and it was decided that frequent regular meetings with a varied programme in which both theoretical and practical work would be presented, could not otherwise than interest and help the members and the public.

It was voted that the meetings of the society take place monthly, except during July and August, and that such meetings be held on the third Saturday of the month at 3 o'clock.

The election of officers resulted as follows: president, Dr. C. E. Ehinger, West Chester State Normal; first vice-president, Mr. Richard Pertuch, Philadelphia Turngemeinde; second vice-president, Captain T. D. Landon, Bordentown Military Institute; secretary, Miss Esther Kuhn; treasurer, Mr. James A. Babbitt, Haverford College; council, Miss R. Winifred Blake, Philadelphia Normal School; Miss Maude G. Hopkins, Drexel Institute; Miss Evaline Young, Philadelphia High School.

The next meeting will be held on Saturday, April 16, 1898, when a paper entitled, "The Mental Factor in Physical Training," will be presented by Lightner Witmer, Ph.D., of the University of Pennsylvania. An exhibition of lantern slides illustrating some phases of gymnastic work will demonstrate the practical side of the problem.

ESTHER KUHN,
Secretary.

REPORTS OF THE COUNCIL.

(Published by authority of the National Council, A. A. A. P. E.)

January 8, 1898.—Treasurer reported $90.85 on hand.

Voted, That the corresponding secretary prepare and send out to each delinquent member a personal address asking him to retain his membership and pay up his dues.

Voted, To accept Dr. Hartwell's resignation as chairman of committee on publication, etc., owing to pressure of other work and to request him to continue in an advisory relation to the committee.

Dr. Sargent reported an organization of Directors of College Gymnasia at New York during the holidays as a branch of the A. A. A. P. E.

Voted, to hold the convention in Boston during June, the time to be determined by the committee on convention.

Voted, That Dr. Sargent be added to the publication committee.

The corresponding secretary reported for the year: receipts for dues, $516; reports, reviews, etc., $72.50; subscriptions to REVIEW, $11.33; donations, $3.50; society fees, $15; total, $618.33. Expenditures: postage for correspondence, $26.76; for reviews and reports, $51.39; expressage, $14.92; clerical work, $86.68; sundries, $8; total, $187.75; balance, $430.75.

The corresponding secretary also reported the number of new members for 1897, 166. Total membership, including all who have paid for 1896 or 1897, 550. Number in arrears, two or more years behind in dues, 194.

Seven applicants elected to membership upon payment of dues.

February 4, 1898.—Treasurer reported for January: cash on hand, $90.85; received, $35.75; total, $126.60; paid, $9.17; balance, $117.43.

Ten new applicants admitted to membership.

The council voted to give notice of a request for a change in Constitution to do away with the distinction between active and associate members, in order to avoid injustice to members who become active while their names remain on the associate list, and to simplify the clerical work of keeping lists of members.

Voted, To publish the minutes of its meetings in the REVIEW.

Voted, The council to hold the convention in Boston, 1898, June 28, 29 and 30.

Voted, To publish this decision of the council in the forthcoming number of the REVIEW, and bespeak the coöperation of all members for the success of the meeting.

Voted, To appoint a committee of entertainment to plan for the accommodation of visiting members to the national convention. Miss Homans, Dr. Channing and Mr. Huling were appointed.

March 4.—Discussion of convention plans.

April 1.—Secretary reported receipt of $262 and offered twenty-four names of applicants for membership.

Secretary reported sufficient material for the March number of the REVIEW.

Treasurer reported balance on hand, April 1, $132.22.

The president presented an outline of programme for convention. The committee on programme was instructed to prepare a circular and send the same to members.

OFFICIAL ANNOUNCEMENTS.

As already announced, the first national convention of the A. A. A. P. E. will be held in Boston on June 28, 29 and 30. It seems to the council that the business of the convention should be so ordered and conducted as to subserve the interests of the association as directly as possible. Therefore in the provisional programme given below, more emphasis is laid upon questions relating to the welfare of the association itself and to the lines of policy which it should follow or promote than to questions of a more general and popular nature. It is aimed to make the gathering a convention of delegates representative of the membership of the association, and it is eminently desirable that the members of the association, both those belonging to constituent societies and the members at large, should recognize that the convention is the immediate concern of the association and not of the national council. The national council is but the executive organ of the association, and the intent of the constitution in its provisions relating to the convention is to provide means for the members of the constituent societies to express their views and exercise their will concerning the interests and management of the association in accordance with the principles of democracy. It should be distinctly understood that while the members of the national council are allowed to take part in the convention, they are denied the right of voting in it. The exigencies of the case seem to demand that the proscriptions of the constitution and statutes should not be construed in too strict and rigid a manner. While a considerable number of vigorous societies have been reorganized, the growth of the association has not been rapid or very large. Should a strict construction of the constitution and statutes be followed, and the choice of delegates to the convention be limited entirely to representatives of district organizations, the convention could not, fully and fairly, represent all the membership of the association. In view of these facts the council has decided to call upon the societies, instead of such districts as have been organized, to choose delegates to the convention on the following basis, viz., every society shall be entitled to (1) one delegate at large; and (2) one delegate for every ten members belonging to such society. No delegate shall represent more than one society, but a society may, for convenience or the sake of economy, be represented by members at large or by members of other societies, but no society, other than the Boston society, shall be represented by members of the Boston Physical Education Society. Societies in arrears in the matter of dues at the time of the meeting of the convention, may be admitted to a seat and a vote only by a resolution of the convention itself. Attention is also called to the fact that in accordance with Section 5, Division B of the statutes, societies not represented at the convention, unless they tender the national council sufficient excuse therefor, within four weeks from the beginning of the convention, are liable to be excluded from the association by the national council. That there may be no question as to the validity of the credentials presented by delegates to the convention, each society is urgently requested to ratify or reject as soon as possible the above proposal of the national council that each society shall be entitled to one delegate at large and one delegate for every additional ten members.

The national council begs to be informed as soon as possible of the decision of the several societies upon this point.

It is felt by the national council that it is inexpedient to provide for section rather than for general meetings. The council is of the opinion that the programme, aside from the order of business, should consist chiefly in the discussion of topics whose consideration is of practical importance for the association at large. It is therefore proposed that definite theses, set forth in the provisional programme, should be fully and freely discussed at the meetings of the convention, and that the sense of the convention shall finally be taken by vote upon the several theses alluded to. It is also proposed to invite members of the association and others who may not be able to attend the convention to contribute papers to be read by title or by an abstract of not more than five hundred words, which papers shall be published in the proceedings of the convention, subject to the approval of the executive committee of that body.

It is urged upon the societies that they instruct their delegates to prepare concise reports upon the conditions, needs and prospects of physical training of the societies and of the condition of physical education in the neighborhood of the societies. It would add much to the interest and value of the convention if the several societies could consider the theses proposed for discussion by the convention and would instruct their delegates in a general way to give expression to the opinion of the societies when the vote upon the theses shall be had. It is also desirable that the delegates attending the convention should be able to voice the opinion of the several societies in respect to (1) the place for holding the next national convention; (2) the place which shall be the headquarters of the next national council; and (3) the best method of conducting and publishing the AMERICAN PHYSICAL EDUCATION REVIEW in the future.

It is further desirable that the convention should be informed as to the opinion of the several societies as to what changes and amendments, if any, should be made in the general constitution, by-laws and statutes of the association, as the holding of the convention will present the first opportunity for the reorganized association to express an opinion as to the working of the constitution adopted at the New York meeting of the association in 1895.

The council invites criticism and suggestion on the part of the constituent societies as to the features of the provisional programme which is appended.

Those societies which have not as yet sent in their replies to the circular sent out March 16 by the corresponding secretary for the council are earnestly requested to send replies to the questions contained in said circular to the corresponding secretary, Dr. G. W. Fitz, Cambridge, Mass., at once.

For the Council: EDWARD M. HARTWELL,
President.

PRELIMINARY STATEMENT AND PROVISIONAL PROGRAMME OF FIRST NATIONAL CONVENTION OF THE A. A. A. P. E.

PRELIMINARY STATEMENT.

The Convention will be held in Boston, June 28, 29 and 30, 1898. The Convention is to be composed of delegates duly chosen and accredited by the Constituent Societies, *not by Districts*, as there are so few of the latter. It is suggested that each society shall be entitled to one delegate and one additional for every ten members after the first ten, unless a majority of the societies vote *against* suspending the rule which gives one delegate to every thirty members and one delegate for an excess of twenty members. As provided by the Constitution, the members of the National Council will serve as members of the Convention, but will have no vote in the Convention. The President of the Council will call the Convention to order and make an address.

The Council will draw up the programme of the Convention, and the order of business, but it invites suggestions from the societies as to the order of business to be considered.

The Council is of the opinion that the Convention besides choosing (*a*) the place at which the next convention shall be held, and (*b*) the place for National Headquarters, shall consider (1) what changes, if any, are desirable in the Constitution, Statutes or By-Laws of the Association; (2) the condition of the Association, its prospects, and the best means of increasing its influence and usefulness, and (3) the nature of the principal obstacles to the Advancement of Physical Education in the United States. The Council would suggest that the constituent societies consider these questions, and instruct their delegates in general terms concerning them. The Council believes that the Convention should vote by resolution upon certain questions which will be proposed for discussion.

PROVISIONAL PROGRAMME.

TUESDAY, JUNE 28.—MORNING SESSION.

Opening of the Convention. Address by the President of the Council.

Choice of Committee on Credentials.

Report of Committee on Credentials.

Choice of Permanent Chairman and Secretary.

Choice of Executive Committee.

Choice of Committee on Resolutions.

Session of the Convention as a Committee of the whole, (1) to hear Reports from Standing Committees of the Council, and from the several societies, upon:

(*a*) The condition, needs and prospects of the constituent societies.

(*b*) The present condition of physical training in schools, *e. g.*, public. secondary, normal, colleges, Y. M. C. A., clubs and societies,

and (2) to consider:

(*a*) The needs of the Association.

(*b*) The most hopeful means of overcoming the obstacles to its work.

(*c*) Amendments and changes to Constitution, etc.

(*d*) The place at which the next Convention shall be held.

(*e*) The District or Section which shall choose the next National Council.

It is thought that the morning and afternoon of Tuesday can profitably be spent in considering the topics above suggested, and in dealing with the order of business. On Thursday morning, June 30, the closing session of the Convention will be held, at which time Reports of Committees and the discussion of and action upon resolutions, etc., will be the order of the day.

TUESDAY EVENING.

A public meeting to be devoted to Topics of General and Popular Interest had best be held.

Addresses from Mayor Quincy of Boston, and Dr. C. J. Blake, President of the Boston Physical Education Society, are promised.

WEDNESDAY MORNING, JUNE 29.

The public will be invited to attend and take part in discussions.

(1) Discussion of the following resolution by speakers to be announced:

Whereas, though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable form of educational discipline, therefore, be it

Resolved, that it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training, *unless they have taken a medical degree*, to profess or be expected to serve either as experts in School Hygiene or as practitioners in Mechano-therapy.

(2) Anthropometry.

WEDNESDAY AFTERNOON.

(1) Discussion of the following resolution by speakers to be announced:

Whereas, we believe that serious obstacles to the advancement of Physical Education in the United States are found in the undue and premature promotion of Athletic Sports, and the well-nigh general failure of school and college authorities to recognize and promote approved and rational forms of physical training, therefore be it

Resolved, that, while school games and plays are highly desirable, the introduction and support of gymnastic instruction in city and country schools is of too great importance to be subordinated to the interests of games and plays.

(2) Swimming and Swimming Baths.

WEDNESDAY EVENING.

Exhibition in swimming at the Brookline Public Bath House.

THURSDAY MORNING. JUNE 30.

Discussion of the following question: What measures are best calculated to secure a dignified and influential place for Physical Training in the Educational Curriculum?

FINAL SESSION OF THE CONVENTION.

Reports of Committees.
Closing of the Convention.

THURSDAY AFTERNOON..

Visit to the Riverside Recreation Grounds.

FRIDAY, JULY 1.

Visits to Gymnasia, playgrounds and baths in Boston.

For the Committee on Programme,
EDWARD M. HARTWELL, Chairman.

For the convenience of members of the A. A. A. P. E., who are interested in the bibliography of physical education, the committee on publication and information of the council have prepared an "A. A. A. P. E. Bibliography Card," whose characteristics are shown below. Copies of the card may be had on application to the corresponding secretary of the association, Dr. G. W. Fitz, Cambridge, Mass., at cost, $3.00 per 1000.

A. A. A. P. E. BIBLIOGRAPHY CARD.

Classified under.................Consecutive No.......
Name of Author.......................................
Title of work...
....
Edn......
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Form..........; Pages...........; Vols...............
Place of publication..............................
Name of Publisher...............................
Date of publication...............................
Price of publication...............................

(Reverse.)

REMARKS.

This work is a book, pamphlet, article, reprint.
It contains no [an] index of........pp; no [a] bibliography of........pp; plates........; maps........
It may be characterized in following terms:—
....
It is found in..
library..

COMMUNICATIONS.

Editors of REVIEW:

Gentlemen: Some time ago *Mind and Body* contained in one of its numbers the startling announcement that Dr. H. G. Beyer had proved that exercise properly directed would increase growth in height a little over an inch in four years over the height otherwise attained. This statement is making the rounds of the press. Dr. Beyer's investigations have since been published in the PHYSICAL EDUCATION REVIEW.* I must confess that when reading the first notice of this discovery I was rather skeptical. My attitude seems to have been justified, for the material presented by Dr. Beyer does not warrant the conclusions drawn by him. That Dr. Beyer should commit the errors he does, especially after making so strong a plea for sufficient scientific accuracy as is contained in the initial sentences of his article, is a great surprise to me. Nothing is more dangerous to the cause of physical education than to claim for it results which will not stand scientific test. I think it an important enough matter to enter a discussion upon.

Dr. Beyer states that it would appear from these figures that "a positive increase in height may be attained through properly systematized gymnastic exercise, when administered between the years sixteen and twenty, amounting to 28.6 mm. over and above that which may be expected to take place without such exercise." How does Dr. Beyer arrive at these figures? As a basis of comparison he has the normal values of some 4000 naval cadets and the record of 188 cadets influenced by gymnastic exercise. The former figures may be accepted as correct, not so the latter. The 188 cadets have been measured at the beginning of a term of about six months and again at the end of this time. During this period systematic exercise has been compulsory. The class of 188 cadets comprised young men between the ages of sixteen and twenty-one. Dr. Beyer divides the class, therefore, into five divisions, placing within the limits of one year the cadets of like age. Now the increase of height of these divisions is multiplied by two in order to get the increase in height for the whole year. Wrong. The figure so gained does not represent the actual growth of any one of the individuals in a division nor of any one of the divisions in one year. It is simply a speculation on the measurement that could be expected were the rate of growth to be the same the second half of the year as the first. Such is not the case. Dr. Beyer himself states that it is a well known fact that with increase in age, growth is retarded. For this slower growth he does not make allowance in the second half of the year. The diminished normal value for the second half year can easily be constructed from Dr. Beyer's own tables. The normal value for the year 16-17 without exercise is 28 mm.; let us assume the growth to be equal in the two halves of the year, the normal value for the first six months without exercise would then be 14 mm., with exercise 19 mm. The same values for the year following would be 10 and 12 mm. respectively. There seems to be, therefore, a diminution in growth equal to between 3 and 4 mm. for the half year. If we apply this we must arrive at these figures: normal growth for the age 16-16.5 years, 16 mm. The value for the same period with exercise is 19 mm., meaning an increase of 3 mm. The normal value for the time from 16.5-17 years would be about 12 mm.; assuming the increased growth to continue in the second six months at the same rate, the total growth would be 15 mm. The growth under exercise for the first year would therefore be 34 mm. under the most favorable conditions. But as Dr. Beyer concludes from his own tables, and we can accept this conclusion, the younger the person the better the chance of an agent influencing growth favorably to assert itself. We are, therefore, warranted in assuming that with each succeeding year of age, the error due to the multiplication of the acceleration of growth by two will grow in proportion. This being true, there would be very little left for an acceleration during the last half year of Dr. Beyer's table. Another possible error should be mentioned here. If we admit for argument's sake that exercise will stimulate growth for six months, the question arises, how long will this stimulation last? Dr. Beyer would have us believe that it lasts for all of five years, but again such is not the case, for Dr. Beyer's tables, as far as I can see, do not represent 188 individuals, each one of them under observation for 4-5 years, but 188 individuals varying in age 5 years under observation for six months only. The only conclusion warranted, therefore, seems to be this: exercise properly conducted will increase the rate of growth for six months in individuals ranging between 16 and 21 years of age in about inverse ratio to age. That this acceleration of growth lasts longer than even six months remains to be proved. It may last longer; it seems reasonable to suppose that it does, but we have no sufficiently scientific and accurate proof that it does. On the other hand, we know that periods of accelerated growth are followed by periods of retardation. Is it not possible that the great increase of growth under exercise may be followed by a proportionately greater retardation, and that in the end no greater growth will be reached with, than without, exercise? As long as the contrary is not proved, this objection to Dr. Beyer's table is entitled to some regard. What is needed to settle this question is that Dr. Beyer should carefully continue the observations of these same 188 men for 4-5 years and then publish his material and draw his conclusions. Of course the same objections apply to the table regarding increase in weight equally. What cadets Dr. Beyer would have if it were true that each one of his cadets should in five years gain 35 kilos in weight! Supposing the entering cadet should weight only 100 lbs., he would leave with 177 lbs. at the end of his service. The idea of such a gain is simply preposterous. The simple fact that, unlike the plus increase in height, the plus increase in weight is uniform for the different age-divisions should go to show that such increase is due to a first effect of exercise, a first stimulation, which lasts a limited time only. Every director of a gymnasium who has had an opportunity to see boys grow up under a régime of gymnastics knows this without measurement or table. The table for strength suffers from the same inaccuracy. This being the case, Dr. Beyer's idea of the effects of such growth in weight and strength on the vital index is altogether unfounded. The increase in lung capacity, while undoubtedly larger under the first stimulation of exercise for the first six months and while again larger in inverse ratio to age, will continue to be greater for a much longer period than six months, while height, weight and strength, after the first great increase due to initial stimulation, will come down nearly to the level of the normal values of increase without exercise. The addition of the results of the five divisions is a logical error. They each and all represent the same separate fact, which cannot be brought to have any relation to the growth of any individual for a greater period than six months in any of the dimensions or abilities tabulated by Dr. Beyer.

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* REVIEW, Vol. I., p. 76.

E. H. ARNOLD, M.D.

EDITORIAL NOTE AND COMMENT.

NATIONAL CONVENTION.

Although the national convention of the A. A. P. E., according to the Constitution, is primarily for the organization of delegates sent by the societies and for the consideration of the welfare of the organization, yet the meetings cannot fail to be of the utmost value to the individual members. The provisional programme, published in this number of the REVIEW, suggests topics of general interest which will be fully discussed. All members are free to take part in these discussions, and it is hoped that the programme will be sufficiently attractive to insure a large attendance. Not the least helpful feature will be the stimulation of meeting large numbers of people interested in the same lines of work and working under different conditions who are thus able to give a broader aspect to troublesome problems.

Individual Contributions.—The provisional programme gives opportunity for the reading of titles of papers which may thus have a claim to publication in abstract or in full, in the proceedings of the meetings. The value of this is twofold. It both insures credit for original work and gives desirable information to other workers. The writing of a paper embodying actual results or the formulation of problems needing solution, clears away obscurities of thought and makes it possible to get suggestion and criticism from others.

Our association has not been characterized in the past by wealth of contribution in the way of original work, although there are many members in it who are doing work that well deserves publication. It is hoped that these will be stimulated to publish and that others will be brought to realize how rich is the opportunity for investigation.

The report of the work done at Bryn Mawr by Dr. Foster and her assistant, reprinted in this number of the REVIEW, is suggestive of how opportunities may be utilized for advancing our knowledge of effects of exercises which are ordinarily overlooked and wasted. We know so little about the comparative results of the various "systems" of physical training and there is so much confusion in the claims of their advocates that every contribution of this sort is of extreme value. It is to be hoped that many additional experiments will be made along similar lines, and that partisan antagonism and criticism may give way to fair-minded and fruitful investigation.

Until we have a scheme of tests which shall adequately measure the psycho-physical powers of an individual, it is impossible to claim, on other than *a priori* grounds, that the results of one system are superior to those of another. Sweeping praise of one system and condemnation of another must be interpreted as showing the enthusiast's ignorance of fundamental physiological and psychological aspects of exercise.

It seems that at Bryn Mawr the conditions were especially favorable for a fair test, and the points compared are the ones on which stress is ordinarily laid by the advocates of the Swedish system. As shown by the table of results published from the Vassar gymnasium, we expect the greatest improvement in poorly developed and weak individuals, but these are the very ones who show least advance under the Swedish work, even when under the immediate direction of a teacher trained in one of the best normal schools for Swedish gymnastics in this country.

Teachers of physical training have not yet received the recognition from other teachers which they frequently deserve. To a large extent this is an inheritance from the past. A prejudice still clings to physical training on the ground that the body is lower than the mind and that the teaching requires a low mental capacity since only drills and set exercises are involved. There was a certain basis of truth in this, which is, however, rapidly disappearing. Teachers of physical training have taken very little part in educational discussions and have failed to identify themselves with educational progress.

It was anticipated that the breaking up of the A. A. A. P. E. into small societies would bring about the closer relation of the members to local educational organizations. Undoubtedly this result has been partially reached; ordinarily, however, even when local physical education societies have been organized, the isolation of the physical training teacher has been as great as before. The remedy for this is to be found in an increase of interest and activity in general educational problems. When educators feel the pressure brought to bear by intelligent and far-seeing physical trainers, the recognition of the work will come. It is, therefore, to be hoped that all members will relate themselves to these associations both through a sense of duty and an appreciation of the broadening influences which will result.

NEWS NOTES.

(Items of interest will be published in this department as received.)

Sixth annual meeting of the American Psychological Association at Ithaca, December 28, 29 and 30, 1897.

Professor Cattell of Columbia described a method for studying muscular fatigue in its relations to mental conditions and exhibited a new instrument for fatigue experiments in which a spring dynamometer is substituted for the lifted weights of Mosso in his Ergograph. Results were shown which do not altogether confirm those of Mosso.

The committee appointed two years ago to inquire into the subject of physical and mental tests and to agree, if possible, upon a series of such tests suitable for use with the undergraduates of our universities, made a partial report and was continued.

The committee recommended that a series of tests which can be made on one subject in one hour, be made in all laboratories so far as possible, and that a variety of tests and methods be tried and the results reported to the committee. The committee is constituted as follows: Professors Cattell, Baldwin, Jastrow, Sanford and Witmer.

By the coöperation of the Boston Physical Education Society, Dr. C. Hanford Henderson of Philadelphia repeated the course of five lectures on Manual Training, lately delivered by him at Harvard University. These lectures were given at the Institute of Technology, in the physics lecture room, Walker building, as follows: January 19, "The Philosophy of Manual Training"; January 26, "Methods of Manual Training"; February 2, "The Manual Training School"; February 9, "Results of Manual Training"; February 16, "The Place of Manual Training in a National System of Education."

An exhibition of swimming was given at the new public bath-house in Brookline, January 1, 1898, under the auspices of the Boston Physical Education Society.

SUMMER SCHOOLS.

American Institute Normal Methods, Auburndale, Mass. Miss Ellen Legarde, Director Physical Training. July 12 to July 29.

Chautauqua School of Physical Education, July 11 to August 19. Jay W. Seaver, president; W. G. Anderson, dean.

Harvard Summer School of Physical Training. Dr. D. A. Sargent, director. July 5 to August 11.

Summer School of the North American Gymnastic Union (German). Dr. W. A. Ocker, director. Milwaukee, July 5 to August 13.

THE BROOKLINE EDUCATIONAL SOCIETY.*

February 8, 1898, a meeting was held under the auspices of the committee on physical training, with illustrations of games and gymnastics from the Brookline public schools. Programme of exercises:

1. Dumb-bells.—High School Girls, Fourth Class. These movements are selected from various combinations of exercises which may be used at home for quick, vigorous exercise of large groups of muscles.

2. Children's Games.—Primary Grades, Pierce School. Bean-bag race, second grade; running jump, cat and rat, dodge ball, third grade. Games are used in the Primary Schools in addition to certain formal exercises to promote free, vigorous activity and to make the necessary change of occupation a healthful recreation. Moreover they are recognized as an important educational factor in the school work, because of the training they furnish for mind as well as for muscle. In pleasant weather the games are played out of doors. The bean-bag race demands quick perception and response from all players throughout the game, and requires a period of intense action for each. The side wins which first gets its players in their original positions. The running jump is the beginning of a hurdle jump, which demands good coördinative power, and allows freedom of action and induces deep breathing. Cat and rat is a circle game requiring alertness and co-operation from all in the ring. Dodge ball requires alertness and quick heave movements. The player wins who is the last to stand within the circle.

3. Swedish Day's Order and Game.—Fifth Grade, Lincoln School. This is representative of the work done each day in the lower grammar grades. The day's order is a series of exercises, varied from day to day, executed at command and planned so as to exercise all important groups of muscles each day, and to increase the muscular and coördinative power from day to day. The game is added to allow freedom and spontaneity.

4. Vaulting, Jumping and Balance Beam.—Girls of the High School. In this work a high degree of coördination and muscular power is demanded.

5. Fancy Work with Music.—Sixth Grade, Lawrence School. This work is supplementary to the regular work in Swedish Gymnastics and is at times substituted for it. The aim is to apply the strength and poise demanded by the more vigorous work to easy, graceful movements.

6. Fancy Steps and Wands.—Girls of the High School. The fancy steps show a few representative movements given under this name, to cultivate poise and rhythm and to arouse a vigorous circulation. The wands are used for the chest expansions they induce, and for the trunk movements and easy, rhythmic changes of poise which may be combined with them.

7. Land Drill for Swimming. Push Ball.—High School Boys, Fourth Class. The land drill is used as a preparation for the regular

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* This programme is reprinted to show how such an exhibition may be used to educate the public.—Ed.

work in swimming. Push ball is a favorite gymnastic game. The side wins which first gets its line in the original position.

8. Marching Calisthenics and Æsthetic Work.—Upper Class Girls, High School. The marching calisthenics involve a series of arm, trunk and leg exercises put together in such a way as to demand a high degree of coördinative power, and to cultivate ease and grace of movement. In the æsthetic work the demand is made upon the sustained control of strength. Through such control grace is cultivated.

9. Bean Bag and Games.—Three-deep, fox and goose, teacher balk, jump the shot. A group of the games used in the gymnasium and out of doors, to promote quickness and all-round exercise rather than specific muscular action.

10. Swedish Day's Order.—Ninth Grade, Pierce School. Daily exercise representing the work of the upper grammar grades. The progression from the lower grade work is shown in the more complicated movements.

11. Basket Ball.—High School Girls. The players are divided into two teams. The game consists of two halves of ten minutes each, with a five-minute rest between. The object of the game is to get the ball into the opponent's basket. The game is started by the referee tossing the ball up in the centre of the field at the beginning of each half, after each goal, or whenever the ball has been out of play. To put the ball in play at the centre it must first be touched by one of the centre men after it has been tossed up by the referee. The ball may be caught and thrown or batted in any direction by one or both hands. Two hands on a ball are necessary to secure it. A player may intercept the ball when it is thrown from or to an opposing player, but he must not run with the ball nor hold it more than five seconds. The ball may not be kicked nor struck with the closed fist. Tackling, holding, pushing or interfering with the person of an opposing player is not allowed, nor shall the arms be used in any way to interfere with the progress of a player. When two persons hold the ball and there is doubt as to whom it belongs, the referee tosses the ball up where it was held. A goal is made only by a goal thrower and counts one. The following are fouls: Kicking the ball, striking it so as to remove it from the hands of an opposing player; running with the ball, giggling it, bouncing the ball more than three times in succession, passing it from one player to another, so that an opponent cannot get it without making a foul, crossing boundary lines with either foot; all roughness and any interference with an opposing player. When a foul is claimed, a goal thrower from the side not making the foul has a free throw for goal and stands fifteen feet from the goal to which he is throwing.

BOOK NOTICES AND BIBLIOGRAPHY.

The Journal of the Royal Statistical Society of London of March, 1896, contains an abstract of a paper by Dr. Francis Warner of London, entieled, "Medical and Physical Conditions among Fifty Thousand Children Seen in 1892-94, and the Methods of Studying Recorded Observations with Reference to the Determination of the Causes of Mental Dullness and Other Defects."

Dr. Warner had previously conducted observations upon some 50,000 school children in the years 1888-1891. Some of the main results of his first investigation, published in the Report of the United States Commissioner of Education, and his paper on "Observation and Study of Movements and Mental Status," contributed to the International Congress of Education in Chicago in 1893, may be found in the proceedings of that congress, pages 750 to 755. A statistical presentation of his results appeared in the Journal of the Royal Statistical society for March, 1893. The general report of the committee concerning the observations of the 100,000 children seen in 1888-1894 was published in book form in 1896 at 72 Margaret street, West London. It is entitled, "Report on the Scientific Study of the Mental and Physical Conditions of Childhood, with Particular Reference to Those of Defective Constitutions," containing also recommendations as to education and training. Students of education and child-study will find Dr. Warner's publications well worth their notice. In this connection we only desire to call attention to the general conclusions set forth in Dr. Warner's most recent article. The article contains numerous tables, setting forth catalogues and groups of children arranged according to the combination of defective conditions present and showing their relative distribution under varying conditions of age, environment and position in school grades. The defective conditions noted by Dr. Warner related chiefly to what he terms "nerve-signs," *e. g.*, weak hand, nervous hand, finger twitches, over-action of the frontal muscles, defects of nutrition and defects in growth and development.

His general conclusions may be summarized as follows:

1. It appears that each class of defect may be causally connected with another class in varying proportions, but that none are invariably associated; the association is doubtless largely brought about by the action of the environment. It appears probable that development and low nutrition may each be a factor in the causation of nerve-signs and that development is the more frequent antecedent.

2. Among children with defects in development, those seven years and younger, and those from eight to ten years, are more often associated with nerve-signs in boys and with low nutrition and dullness in girls; at eleven years and older the girls present cases with both nerve-signs, low nutrition and dullness.

3. Among boys with nerve signs, cases seven years and under, show more association with defect in development, low nutrition and dullness. At eight to ten years the association with defect in development and dullness for boys and with low nutrition for girls is more fre-

quent. At eleven years and over, the association with defect in development is higher for boys and with low nutrition and dullness is higher for girls.

4. Among children with low nutrition, cases seven years old show more association with nerve signs and dullness for boys than with defect in development for girls. At eight to ten the association with development and dullness for boys and with nerve signs for girls is higher. At eleven years and over, the association with development, nerve signs and dullness is higher for boys.

5. Dull boys of seven years show a preponderance of nerve signs, and dull girls of the same age defective development and low nutrition. In boys of eight to ten years and over, nerve signs are more frequently associated with defective development, and in girls of the same age more frequently with low nutrition.

6. Nerve signs, whether they occur alone or in combination with other defects, are more commonly associated with dullness than is defect in development. It is, however, noteworthy that taking all the cases with developmental defects into account, the proportion of girls with associated dullness is higher than with nerve signs. This is due to the marked association of low nutrition with developmental defects in girls. *We conclude that nerve signs are a more general and direct indication of the causes of mental dullness than defect in development.*

Defect in physiognomy and in proportion of the parts of the body is often associated with mental dullness, but the occurrence of brain disorderliness indicated by nerve signs (in coördination) is a more general and direct cause. It should, then, be an object in training children to remove their nerve signs. It is thus shown that both defect in development and nerve signs, either alone or in combination with other classes of defect are much associated with mental dullness. Comparison shows that nerve signs alone or in combination with other defects are more frequent and more potent causes of mental dullness than defect in development alone or in combination, if unassociated with low nutrition. E. M. H.

Military Training is the title of a paper of 45 pages by Dr. H. G. Beyer, surgeon in the United States Navy. The paper is reprinted from the Proceedings of the United States Naval Institute, volume 23, No. 3, whole No. 82. The paper was originally written for the Association of Military Surgeons of the United States.

Dr. Beyer's paper is a comprehensive study of the principles of training involved in preparing athletes and soldiers for excellence in their respective branches of exercise. Dr. Beyer does not believe that football and other athletic sports are useful in developing military efficiency. On this point he says: "I am of the opinion that the soldier *per se* has nothing whatever to learn from, for instance, foot-ball discipline, but should rather say, if there must be discipline in football training, it simply is military discipline applied to an athletic sport, and whoever advocates foot-ball training as being an aid to *military* discipline puts the cart before the horse, and can have very little idea of what discipline really is and where it originated.

"Foot-ball is, after all, mere play, and should never be regarded as anything else. A soldier's calling is, and must be, of a more serious nature, having a more serious object, and kindergarten methods do not apply to such training, at such an age and for such a purpose. It is merely a fine pastime and recreation."

Dr. Beyer draws many of his arguments and illustrations from

"Das Militarische Training, etc.," von Dr. Leitenstorfer, Oberstabsarzt I. Klasse u. Regimentsarzt im K. B. Infanterie-Regiment König Wilhelm von Wurtemberg. Stuttgart, 1897.

The paper deals largely with physiological questions from the point of view of the military surgeon and drill master. It contains a noteworthy discussion of the subject of fatigue, under which Leitenstorfer recognizes five kinds, viz., 1, Muscle fatigue; 2, lung fatigue; 3, heart fatigue; 4, nerve fatigue or true fatigue; 5, neurasthenia, or the condition of overtraining, being a more or less abnormal condition of considerable duration.

Under the head of "Practical Problems" the following topics are considered: 1, Position of attention, in regard to which Leitenstorfer made elaborate experimental investigations which go to show that the position of attention is a fatiguing position; 2, position of "parade rest;" 3, walking, in which the parade-step and route-step are distinguished; 4, running; 5, jumping; 6, riding; 7, swimming.

Dr. Beyer's remarks on the subject of overtraining are particularly noteworthy: "We know," he says...."that the period of training for any of the sports must never be extended over a time of six to eight weeks on the average if we wish to avoid the consequences of overtraining. The period of training a soldier is extended over a much longer space of time. The various branches peculiar to the calling of the soldier or man-of-war's man require as much training and leave as sure an imprint on their anatomy and physiology as do the most complicated muscular movements. An essential difference in the training of a soldier as compared to that of a man-of-war's man is, moreover, to be found in the period of life at which each begins to learn his calling. A sailor begins young, and before his period of normal growth and development is completed; while the soldier does not generally enlist before he is twenty, an age at which growth, in height at least, is nearly at an end. Both need, therefore, different treatment, not only as compared with each other, but also as compared with athletes generally. This fact, however, remains true for all, namely: The highest degree of efficiency within the limits of a man's capacity having been reached, it cannot be long maintained, either with or without detriment to his health, and a period of comparative rest must follow, and it is quite imperative after the period of training. Nor does the training of a soldier or sailor mean that he should constantly be kept at the highest point of physical endurance and efficiency.

"While it is perfectly true and must be admitted that in adults the period of training being over, the former condition of bodily physique returns in about the same period which was spent in training, it is equally true and quite significant that a certain permanent and lasting addition accrues to the organism as regard height, weight, lung capacity and muscular strength over and above the normal *in persons who had not reached the adult age of their normal physiological development* (about 21 years of age), when undergoing training.

And even in adults, long after the condition of their highest physical efficiency and endurance has passed off and their former natural physique has returned, certain permanent gains can be noted which, according to Leitenstorfer, are as follows:

1. "An acquired freedom in the articulations."

2. "An increase in muscular development which, under the influence of a moderate amount of exercise may be maintained for years."

3. "Increased coördination of muscles; a certain muscle memory has been created, by means of which all the movements are quickly recalled, even after years. Ex., the mere sight of a musket will cause the veteran to go through all the movements which its contact with his hands seems to suggest."

4. "A larger lung capacity and a stronger heart with freer circulation."

5. "Moral strength from consciousness of power. In other words, the normal standard of his health and strength has been raised far above the former average, he lives on a higher plane and has acquired more tone throughout his entire organization, which is ready at any moment to be again trained, in a short time, to the highest possible degree of efficiency and endurance." E. M. H.

Educational Value of the Children's Playgrounds. A Novel Plan of Character Building. By Stoyan Vasil Tsanoff, General Secretary of the Culture Extension League. 203 pages. Published for the Author, 1897, at 1305 Arch street, Philadelphia, Pa.

Mr. Tsanoff has made a genuine contribution to the cause of physical training. The subjects of the chapters are as follows:

1. The present attitude towards playgrounds; 2, The meaning of a playground and a description of a model playground; 3, What such playgrounds can accomplish in physical advantages, in order and in the development of life necessary to the formation of good character; 4, The modern doctrines of character building, with a criticism showing that it is the free play of the child which is chiefly concerned in character building; 5, Evil habits, the relation of street playing to evil habits with remedies, both discussed with reference to the playground idea: 6, Practical chapter on the procuring of playgrounds, playgrounds in London and other cities, Philadelphia's model playground movement, history of the Philadelphia playgrounds; 7, A plea to the responsible, to the educators, the press, and others; Appendix: An excellent discussion in regard to the relation of religion and character.

It is a thankless task to criticise an author who has done as careful a piece of work as Mr. Tsanoff, but the work would have been far more valuable had it contained a good bibliography of the subject. The author in the preface states: "The literature devoted to the playground idea consists almost exclusively of some articles in periodicals and daily papers." The large work already being accomplished in Germany, and the rather extended literature of the subject already existing, was evidently not in the mind of Mr. Tsanoff. If the book had dealt with actual results more and less with what was proposed to be done, and what the playgrounds will accomplish, we believe it would be more effective. L. G.

Bibliography of Education. By Will S. Monroe, pp. xxiv+202. Vol. 42 of the International Education Series, edited by William T. Harris. Appleton & Co. New York, 1897.

Chapter xv, pages 140-156, is devoted to Physical Education and School Hygiene. The literature is classified as follows: (*a*) Gymnastics—1. General Principles; 2, The Swedish System; 3, Other Systems; 4, Calisthenics; 5, Delsarte; 6, Athletics; (*b*) Anthropometry; (*c*) School Hygiene—1, General Principles; 2, Eyesight; 3, Overpressure; 4, Spinal Curvature; (*d*) School Architecture and Equipment—1, Buildings and grounds; 2, Furniture and Apparatus; 3, Ventilation and Sanitation; (*e*) Voice Training—1, Vocal Physiology and Hygiene; 2, Stammering; 3, Elocution and Oratory.

In his preface the compiler states that "except in the matter of works of reference—encyclopædias and bibliographies—the selection has been limited to publications in the English language supposed to be obtainable in the ordinary course of trade. A satisfactory bibliography of periodical literature can only be made by a large number of specialists working together." The work is, then, a compilation of titles such as are usually found in libraries and publishers' catalogues. As such it is an excellent selection. It would be a quite safe guide as a whole for a popular library to follow in ordering for this department. On its mechanical side, it is very free from errors; the most serious one I have noticed is on page 141, where ***Mind and Body***, the periodical published in Milwaukee, is given as "Hand and Body."

It seems most ungrateful to find fault with a work for which the labor had been so great as compared with the pecuniary or other emoluments. But the bibliography falls very far short of what students of education need. That it is rather a book for librarians is recognized by Dr. Harris in the editor's preface, where he says: "It will be of especial value to librarians in the way of assisting them to answer two questions: (*a*) What books has this library on any special educational theme? (*b*) What books ought it to obtain to complete its collection in that theme?" In bibliographical work there is crying need not merely of careful copying of titles and arrangement of them under the most significant classification, but much more of brief and comprehensive analyses, of critical estimates that will place books in such perspective that the most important will occupy the foreground in the student's conception of the literature. Everything possible should be done to individualize and discriminate. Sometimes this is not done for the reason that the work of compilation takes so much time that none is left for criticism. Too often, the bibliographer is possessed with the mania of collecting titles and cannot give his lists the liberal pruning they deserve. In Mr. Monroe's bibliography the sins are rather of omission that of redundancy, and if the notes, which seem to be for the most part accidental and at second hand, had been made a general and methodical feature, the book would have come much nearer meeting the need for such a work.

Many of the most important titles on Physical Education and Hygiene fall into other chapters, but there are no cross-references to call attention to them. The chapters are those on History of Education, Theory [or Philosophy] of Education, Psychology, which includes Child Study, Kindergarten, Manual Training, Education of Women, Education of Defective Children, Education and Heredity, Education and Crime; there should also be references to those Education Conferences [Proceedings of Associations] and Journals that give considerable attention to questions relating to Physical Education.

In one respect the book might have been made more valuable to librarians as well as to others; a large number of reprints from periodicals are included, without anything to show that they are reprints and from what periodicals. The author has included these reprints because it is evident that an up-to-date scientific article is worthy of attention at least as much as a bulky handbook or manual; at the same time, his rule of omitting titles in periodicals, as such, has limited him to those reprinted in pamphlet form. The fact that an article has been reprinted proves nothing as to its importance. The limitation to "publications in the English language" finds practical justification in those for whom the bibliography is intended, and enough scientific completeness within the wealth of the literature in English; but the further limitation to "publications supposed to be obtainable in the ordinary course of trade" is, as the compiler has interpreted it, neither practical nor scientific, and is the most serious fault which he has made in his principles of selection. The most important single publication on Physical Education in this country is the Proceedings and Reports of the American Association for the Advancement of Physical Education. This does not, appear in the chapter on Physical Education, but in the list of Conferences, and without any comment as to its prominence in professional representation and scientific discussions. Mr. Monroe's bibliography will stand along with those of Hall, MacAlister and Sonnenschein as the latest and most comprehensive of the four in the literature of education in English. J. M. P.

One Hundred Gymnastic Games, prepared by ten members of the Alumni of the Boston Normal School of Gymnastics. 90 pages. Boston. George H. Ellis. 1897.

The book in question contains descriptions of one hundred games considered by their compilers especially adapted for gymnastic purposes. As the games selected are popular children's games common in many countries, the compilers have wisely forborne from attempting to stamp them as emanating from any particular nation or school. "Games," the compliers say, "are valuable in physical education as a test of what the pupil has gained from his gymnastic training in alertness and self-control, and also as a means of training him yet farther in these directions and in moral qualities as well."

That is one view that may be taken as to the value of games. There are those who consider that games are also valuable as a rest and relief from formal and rational gymnastic instruction. It may also be urged that children at play express themselves much more naturally and fully than when they are subjected to any form of procedure in which the element of instruction predominates, and that games, therefore, to the observant teacher, are of the utmost value in enabling him to determine the mental and moral qualities of his pupils.

The games in the collection under consideration are grouped under the general heads: 1, Ball Games; 2, Running Games, and 3, Miscellaneous and Quiet Games. The grade or class of pupils to which the game is adapted is indicated in each case; also the number of players and the supposed purpose of the game. The selection comprises a very considerable variety of games. The descriptions and rules are conciseiy and plainly given. The full value of the book can only be determined by the experience of those who shall use it. It will undoubtedly be found a convenient and helpful collection by teachers who have the skill and tact to help their pupils to make the most of even restricted facilities for play in the ordinary school yard.

The physical qualities of the book are commendable. It is well dressed as regards type and paper, and the page chosen is of a convenient size. The book does not purport to be exhaustive either as a treatise or as a handbook. Its preface is pitched in a low tone of voice, as befits the utterance of a girls' school. If we may interpret its motto, *Festina lente*, to mean "Wait until we are ready," it may be presumed that a larger and more pretentious volume, more consonant with principles of progression, may be expected from the same hands at some future date. The compilers appear to have taken some liberties with Latin syntax as the book purports to have been prepared by ten members of the Alumni of the Boston Normal School of Gymnastics. We were not aware that the authorities in Latin grammar had modified the rules governing the use of masculine and feminine endings in the case of words whose gender is indisputable. E. M. H.

NAMES AND ADDRESSES OF MEMBERS OF THE A. A. A. P. E.

HONORARY MEMBERS.

Bowditch, H. P., M.D., LL.D., Harvard Medical School, Boston, Mass.
Demeny, George, Paris, France.
Eliot, Charles, LL.D., Cambridge, Mass.
Fox, G. M., Lieut. Colonel, South Camp, Aldershot, Hants, England.
Galton, F. S., F.R.S., 42 Rutland Gate, London, England.
Hall, G. Stanley, Ph.D., LL.D., Worcester, Mass.
Hemenway, Augustus, 10 Tremont street, Boston, Mass.
Roberts, Charles, F.R.C.S., London, England.

GENERAL MEMBERS.

Adams, A. F., U. S. National Museum, Washington, D. C.
Adams, Adela W., 45 Oxford street, Cambridge, Mass.
Adams, Charles E., M.D., Rutgers College, New Brunswick, N. J.
Adams, Kate L., 63 Harvard avenue, Brookline, Mass.
Adkins, Mary Ewart, Vassar College, Poughkeepsie, N. Y.
Aldinger, A. K., State Normal School, Bloomsburg, Pa.
Allen, Edward E., M.D., 2001 Race street, Philadelphia, Pa.
Allen, Mabelle, 82 North Main street, Woonsocket, R. I.
Allen, Mary E., Allen Gymnasium, St. Botolph street, Boston, Mass.
Allen, W. E., Earlham College, Richmond, Ind.
Alexander, Frank East Providence High School, East Providence, R. I.
Amen, Harmen P., Phillips Academy, Exeter, N. H.
Anderson, H. S., University School, Cleveland, O.
Anderson, Nellie S., 29 University Road, Brookline, Mass.
Anderson, W. G., M.D., 120 College street, New Haven, Conn.
Angier, Alice, 53 Waban Park, Newton, Mass.
Armstrong, George P., Belmont, Mass.
Arnold, E. Herman, M.D., 315 York street, New Haven, Conn.
Ashcroft, Carrie Van R., 26 North Compton avenue, St. Louis, Mo.
Atkinson, Kathleen, 287 Clermont avenue, Brooklyn, N. Y.
Avery, Sibyl Howe, Providence High School, Providence, R. I.
Babbitt, James A., Haverford College, Haverford, Pa.
Babcock, Maud May, University of Utah, Salt Lake City, Utah.
Baer, Clara G., Sophie Newcomb Memorial College, New Orleans, La.
Bailey, Florence Z., Prospect Hill School, Greenfield, Mass.
Baker, L. K., M.D., 1257 Euclid avenue, Cleveland, O.
Ball, W. J., Jr., Y. M. C. A., Montreal, Can.
Ballard, Mary Wood, 1808 Green street, Philadelphia, Pa.
Ballintine, Harriet I., Vassar College, Poughkeepsie, N. Y.
Ballou, Belle, 309 Linden avenue, Pittsburg, Pa.
Ballou, Laura Whiting, Claremont street, Newton, Mass.
Bancroft, Jessie H., 194 Joralemon street, Brooklyn, N. Y.
Bangs, Lois A., 43 West 47th street, New York, N. Y.

Barker, Alexander E. W., Y. M. C. A., Worcester, England.
Barnekor, Mrs. G. E., 26 Courtney avenue, Newburg, N. Y.
Barnes, Bessie L., State Normal School, Bridgewater, Mass.
Barnes, Prof. Earl, Leland Stanford, Jr., University, Palo Alto, Calif.
Barnjum, Helen O., University Gymnasium, 19 University street, Montreal, Can.
Barr, Annie L., Director, Women's Gymnasium, University of Nebraska, Lincoln, Neb.
Barrett, A. L., M.D., 166 West 122d street, New York, N. Y.
Barrows, Elizabeth B., The Western College, Oxford, O.
Barrows, Mabel H., 51 Sawyer avenue, Dorchester, Mass.
Bartholomew, Mrs. Clara L., 5149 Cornell avenue, Chicago, Ill.
Bartlett, Bertha L., 1541 Bourier street, Philadelphia, Pa.
Bartlett, Josiah, Riverview Academy, Poughkeepsie, N. Y.
Bates, M. Elizabeth, care of Miss Baldwin's School, Bryn Mawr, Pa.
Beiderhase, Josephine, 704 West End avenue, New York, N. Y.
Bemis, Mary B., Spencer, Mass.
Benkeman, F. L., 112 6th street, Cleveland, O.
Bennett, Gazella, Perkins Institute for the Blind, South Boston, Mass.
Berenson, Senda, Smith College, Northampton, Mass.
Bettle, Edward, Jr., 514 Walnut street, Philadelphia Pa.
Beyer, Henry G., M.D., Navy Department, Washington, D. C.
Bigelow, Catharine, Norwood, Mass.
Bigelow, John, Jr., Capt., Mass. Inst. Technology, Boston, Mass.
Bisbee, J. B., Riverview Academy, Poughkeepsie, N. Y.
Bishop, Harriett, 382 Hamilton street, Albany, N. Y.
Bissell, Mary T., M.D., 26 West 47th street, New York, N. Y.
Bissett, Florence G., Berkeley, Mass.
Blackwood, Mrs. Janette, 193 Theodore street, Detroit, Mich.
Blake, Clarence J., M.D., 226 Marlborough street, Boston, Mass.
Blake, Irene E., 105 Fort Greene place, Brooklyn, N. Y.
Blake, R. Winifred, Normal School for Girls, Philadelphia, Pa.
Blakiston, Mrs. Kenneth M., Haverford, Pa.
Bliss, Miss E. F., 388 Pine street, Providence, R. I.
Boas, Franz, Ph.D., 123 West 82d street, New York, N. Y.
Boice, H. B., M.D., State Normal School, Trenton, N. J.
Bolin, Jakob, 70 East 94th street, New York, N. Y.
Bolin, Sigrid, 325 West 58th street, New York, N. Y.
Bolster, Wm. Wheeler, Jr., Bates College Gymnasium, Lewiston, Me.
Bond, Sarah A., M.D., 333 Lamartine street, Jamaica Plains, Mass.
Boos, Herman J., Mass. Inst. Technology, Boston, Mass.
Bowen, Cora L., 811 Ellis street, Ypsilanti, Mich.
Bowen, W. P., 811 Ellis street, Ypsilanti, Mich.
Boynton, Frances N., Ogontz School, Ogontz, Pa.
Brackett, E. G., M.D., 133 Newbury street, Boston, Mass.,
Bradford, E. H., M.D., 133 Newbury street, Boston, Mass.
Bradley, Ella.
Brede, Charles F., 5354 Germantown avenue, Germantown, Pa.
Brigham, Agnes Otis, 122 Chestnut street, Brookline, Mass.
Brooks, Helen E., Gloucester, Mass.
Brooks, W. A., M.D., 259 Beacon street, Boston, Mass.
Brown, Arthur W., Y. M. C. A., Grand Rapids, Mich.
Brown, Elias G., M.D., 481 West 145th street, New York, N. Y.
Brown, Frank E., 218 Cottage street, Salem, Ore.
Brown, Harry, 1 Kendal square, Leeds, Eng.

Brunner, Helen M., 167 Brainard street, Detroit, Mich.
Brush, Mrs. Susan Maud, Dixon House, Westerly, R. I.
Buckman, Mrs. Eugene, 1120 13th street, N. W., Washington, D. C.
Buckman, Eugene, 1120 13th street, N. W., Washington, D. C.
Bullard, W. N., M.D., 89 Marlborough street, Boston, Mass.
Burbank, Ella L., Brimmer School, Boston, Mass.
Burchenal, Elizabeth, care of Mrs. E. J. Forster, Milton, Mass.
Burnham, Stella M., 558 Jefferson street, Milwaukee, Wis.
Burton, Mrs. Fannie Cheever, Normal School, Ypsilanti, Mich.
Bush, Charlotte F., 283 Beacon street, Boston, Mass.
Cabot, Caroline A., M.D., 168 West 48th street, New York, N. Y.
Callowhill, Mrs. Gulli-Oberg, Roslindale, Mass.
Canfield, Ellen B., 3 Reservoir avenue, Ithaca, N. Y.
Cann, F. H., University of City of New York, New York, N. Y.
Cannon, Mary G., 40 Dwight street, New Haven, Conn.
Carter, Florence L., 71 Mount Auburn street, Watertown, Mass.
Carter, Marien F., 103 West 63d street, New York, N. Y.
Case, Frances E., 1527 Pine street, Philadelphia, Pa.
Centervall, Ivan A., 61 Dartmouth street, Boston, Mass.
Chamberlain, Ruth, St. Margaret's School, Waterbury, Conn.
Channing, Walter, M.D., corner Boylston street and Chestnut Hill avenue, Brookline, Mass.
Chapin, Jennie E., 168 Prospect street, Willimantic, Conn.
Chaplin, Mabel C., Georgetown, Mass.
Chase, H. Lincoln, M.D., 126 Harvard street, Brookline, Mass.
Chase, Mabel Holkins, 71 Madison avenue, New York, N. Y.
Cheetham, I. C., care of Drumm-Flato Commission Co., Union Stock Yards, Chicago, Ill.
Cheyney, Phebe, Normal School of Gymnastics, Huntington avenue, Boston, Mass.
Clark, Cora B., State Normal School, Shippensburg, Pa.
Clark, Ellery H., 43 Bay State road, Boston, Mass.
Clark, Robert A., M.D., University of Nebraska, Lincoln, Neb.
Clarke, Mrs. E. C. L., Williams College, Williamstown, Mass.
Clough, M. Pamelia, Hotel Oxford, Boston, Mass.
Coburn, Kate Van R., 1173 Chapel street, New Haven, Conn.
Coe, Helen L., 450 Cumberland street, Portland, Me.
Colby, Jennie M., 316 Newbury street, Boston, Mass.
Collin, C. O. Lewis., Normal School of Gymnastics, Boston, Mass.
Conant, William H., M.D., 252 Newbury street, Boston, Mass.
Coney, Alice B., 31 East McMillan street, Mount Auburn, Cincinnati, O.
Cook, Frank A., 16 Taylor street, Providence, R. I.
Coop, Wm. L., Narragansett Machine Co., Providence, R. I.
Coope, Jessie, Hampton Institute, Hampton, Va.
Corey, Alberta Josephine, Oberlin College, Oberlin, Pa.
Corey, William H., 11 Stone street, Charlestown, Mass.
Cornish, Harry S., Knickerbocker Athletic Club, Madison avenue and 45th street, New York, N. Y.
Cornwell, Ada W., 307 York street, New Haven, Conn.
Cowles, Edward, M.D., Waverly, Mass.
Crawford, May, Rossville, Clinton Co., Ind.
Crawford, Willa K., 155 Highland avenue, New Castle, Pa.
Crittendon, Edith V., 185A Quincy street, Brooklyn, N. Y.
Cummings, Edith, 28 Chestnut street, Westfield, Mass.
Cummings, Gertrude, 40 Greenough avenue, Jamaica Plains, Mass.

Curtiss, Frank Homer, Purdue University, Lafayette, Ind.
Cutler, Annie M., 716 Main street, Waltham, Mass.
Dabney, Sarah H., care of W. H. Hughes, Milton, Mass.
Day, W. E., Y. M. C. A., Dayton, O.
Deane, Eleanor R., St. Botolph Gymnasium, 194 Clarendon street, Boston, Mass.
DeCamp, Mary A., Boonton, N. J.
DeGroot, Edw. B., Montclair Military Academy, Walden place, Mont-Clair, N. J.
Denman, W. V., Y. M. C. A., Norwich, Conn.
Dessotell, Eleanor, 269 Park street, Detroit, Mich.
Dickinson, Wm. B., Y. M. C. A., Poughkeepsie, N. Y.
Dispeau, Florence, 207 Broad street, Pawtucket, R. I.
Dithridge, Louisa Mary, 12 13th street, Ann Arbor, Mich.
Dodge, F. H., Director Ballintine Gymnasium, Rutgers College, New Brunswick, N. J.
Dodge, Grace H., 262 Madison avenue, New York, N. Y.
Doehla, Adam, 216 Shaw avenue, McKeesport, Pa.
Doen, Alice M., 11 Newbury street, Boston, Mass.
Dohs, Francis, Hemenway Gymnasium, Cambridge, Mass.
Doldt, John E., Director Athletic Club, Providence, R. I.
Donnelley, Mrs. M. J., 122 Pacific street, Brooklyn, N. Y.
Doolittle, Fred J., Dr. Holbrook's Military school, Sing Sing, N. Y.
Doran, W. M., 144 Grove street, New Haven, Conn.
Downer, R. C., 43 Milk street, Boston, Mass.
Dudley, Gertrude, Miss Mackie's School, Newburgh-on-Hudson, N. Y.
Durand, Florence D., 530 Massachusetts avenue, Boston, Mass.
Dutton, Superintendent Samuel T., Brookline, Mass.
Dwight, E. W., M.D., 224 Marlborough street, Boston, Mass.
Easton, Grace J., 120 Broadway, New York, N. Y.
Eaton, Katherine E., Durant Gymnasium, Boston, Mass.
Eberhard, Christian, Athletic Club, Exeter street, Boston, Mass.
Edwards, Prof. Charles S., Loraine avenue, Clifton, Cincinnati, O.
Egbert, Eva, Franklin, Pa.
Ehinger, Mrs. C. E., West Chester, Pa.
Ehinger, Mrs. C. E., M.D., State Normal School, West Chester, Pa.
Ehler, George W., Y. M. C. A. Training School, Chicago, Ill.
Elcock, Mary, 1 St. Felix street, Brooklyn, N. Y.
Eliot, John F., 48 Gordon avenue, Hyde Park, Mass.
Elkinton, Thomas, 400 South 9th street, Philadelphia, Pa.
Elliot, Gabriella Wilson, 1 Greenwood park, Dorchester, Mass.
Ellis, A. Caswell, Clark University, Worcester, Mass.
Elsom, J. C., M.D., University of Wisconsin, Madison, Wis.
Enebuske, Claes J., M.D., 553 Boylston street, Boston, Mass.
Erickson, Josephine S., 183 Main street, New Britain, Conn.
Faries, Randolph, M.D., 2007 Walnut street, Philadelphia, Pa.
Farquhar, Sarah Brooks, Rockville, Maryland.
Farrell, Martha M., Stoughton, Mass.
Farrington, Agnes, Liberty street, Newburgh, N. Y.
Felker, Gertrude, Rockford College, Rockford, Ill.
Fenis, Caroline M., "The Elms," Poughkeepsie, N. Y.
Finkelday, Fred'k A., Turngemeinde, Camden, N. J.
Fisher, George J., Y. M. C. A. building, Cincinnati, O.
Fisher, Laura, 68 Marlborough street, Boston, Mass.
Fisher, Margaret D., 404 Grand avenue, Brooklyn, N. Y.

Fisher, Robert, M.D., corner Lexington and Dunham streets, Cleveland, O.
Fitz, George W., M.D., Cambridge, Mass.
Fogler, Grace E., care of J. K. Stetson, 194 French street, Bangor, Me.
Foglesong, Nellie A., 418 Salem street, Dayton, O.
Foley, Anna G., 26 Mulberry street, Worcester, Mass.
Ford, W. A., M.D., N. E., corner 15th and Locust streets, Philadelphia, Pa.
Forster, Ruth, Milton, Mass.
Foster, Alice B., M.D., Bryn Mawr College, Bryn Mawr, Pa.
Foster, Jessie, "The Sloan," Sandusky, O.
Fowler, Theodosia S.
Freeston, Mary Cecil, 152 E. 60th street, New York, N. Y.
Frothingham, Helen H., 105 Gates avenue, Brookline, N. Y.
Gabler, G. L., Y. M. C. A., Bridgeport, Conn.
Gardner, Anna Mary, 51 East 59th street, New York, N. Y.
Gardner, Elizabeth Bradbury, 51 East 59th street, New York, N. Y.
Garland, Josephine B., 111 Appleton street, Boston, Mass.
Garside, Martha, Pratt Institute, Brooklyn, N. Y.
Gellert, Miss S., 62 Cannon street, Poughkeepsie, N. Y.
Gelling, F. H., 108 Glenparke road, Forest Gate, London, Eng.
Gibbs, Edith M., Foxborough, Mass., Box 279.
Gilley, Frank M., 100 Clark avenue, Chelsea, Mass.
Goldie, George, Princeton, N. J.
Goldsmith, Carrie, 1101 E. McMillan street, Cincinnati, O.
Goldthwait, J. E., M.D., 398 Marlborough street, Boston, Mass.
Gordon, D. C., 356 Bagg street, Detroit, Mich.
Grant, Helen St. J., Charlesbank road, Newton, Mass.
Gray, Gold, 3602 Eastern avenue, Cincinnati, O.
Gray, Isa E., 421 Marlborough street, Boston, Mass.
Greene, Alma L., 72 Hall street, Waltham, Mass.
Greene, Grace G., Wianno, Cape Cod, Mass.
Greenleaf, R. W., M.D., 561 Boylston street, Boston, Mass.
Grosvenor, Edith Louise, 7 Buckingham place, Cambridge, Mass.
Groszmann, Maximilian P. E., M.D., 109 West 54th street, New York, N. Y.
Gulick, Luther, M.D., Springfield, Mass.
Gurney, Hattie A., 21 Harrison street, Poughkeepsie, N. Y.
Gwathemey, James T., M.D., Vanderbilt University, Nashville, Tenn.
Gyles, Rose M., Hull House, 335 Halsted street, Chicago, Ill.
Haagensen, Mary S., 101 Pinckney street, Boston, Mass.
Hall, Carolyn Ladd., M.D., Haverford College, Haverford, Pa.
Halliday, Mabel, University of Cincinnati, Cincinnati, O.
Halsted, Alfred T., M.D., Springfield, Mass.
Hamilton, Sarah E., West Broad street, Chester, Pa.
Hamlin, M. J., 878 Case avenue, Cleveland, O.
Hammet, Charles Edw., 415 Dearborn avenue, Chicago, Ill.
Hanchett, Annie, Normal School of Gymnastics, Huntington avenue, Boston, Mass.
Hand, C. W., Yale University Gymnasium, New Haven, Conn.
Hanna, Delphine, M.D., Baldwin Cottage, Oberlin, O.
Hanus, Professor Paul H., 60 Buckingham street, Cambridge, Mass.
Harding, Mrs. B. K., Highland Falls, N. Y.
Harper, Ruth A., 80 Grove Hill, New Britain, Conn.
Harris, E. L., Central High School, Cleveland, O.

Hartwell, Edward M., M.D., 5 Brimmer street, Boston, Mass.
Harvey, Fred'k James, 70 Sidwell's street, Exeter, Devonshire, Eng.
Harvey, Janey.
Haskell, C. E., Y. M. C. A., San Antonio, Tex.
Hastings, Wm. W., University of Nebraska, Lincoln, Neb.
Haug, Emanuel, 60 West 13th street, New York, N. Y.
Hayes, Marion F., 218 Lexington street, East Boston, Mass.
Hazen, Charlotte, Auburndale, Mass.
Healey, Frances, 765 Main street, Worcester, Mass.
Helbach, Gus, 18 Kenmore street, Cleveland, O.
Hellrung, A., Hotel Imperial, New York, N. Y.
Helmer, F. H., Broadway Branch, Y. M. C. A., Cleveland, O.
Helmrich, Fred'k W., 2513 Stout street, Denver, Col.
Henay, Frances A., N. E. Conservatory of Music, Boston, Mass.
Hendrick, Mrs. B. J., 165 Livingston street, New Haven, Conn.
Hermann, Ernest, Foxboro, Mass., P. O. Box 103.
Hewins, Annie J., High street, Dedham, Mass.
Heywood, J. C., Mount Auburn School, Cincinnati, O.
Heyworth, Edith E., 22 Dyer avenue, Johnston, R. I.
Hibbert, Oliver L., Y. M. C. A., Providence, R. I.
Hickox, Eva A., Durham, Conn.
Hicks, Mrs. Mary Dana, 646 Washington street, Boston, Mass.
Higley, Florence Blanche, 806 5th street, Cedar Rapids, Ia.
Hill, Edith L., 88 Blackstone street, Woonsocket, R. I.
Hill, Lucile E., Wellesley College, Wellesley, Mass.
Hilliard, Beth P., 26 Rutland square, Boston, Mass.
Hills, Katherine L., Y. W. C. A., 205 Washington avenue, Scranton, Pa.
Hillyer, J. Blake, 106 Broadway, West New Brighton, Staten Island, N. Y.
Hinkley, Augusta, 144 Remsen street, Brooklyn, N. Y.
Hitchcock, E., M.D., Sr., Amherst College, Amherst, Mass.
Hodgson, Edith, 1164 Pacific street, Brooklyn, N. Y.
Holbrook, M. L., M.D., 46 East 21st street, New York, N. Y.
Holman, Frank, Y. M. C. A., 202 Hamilton road, London, Ont.
Holmes, David H., 30 St. Germain street, Boston, Mass.
Holt, Jacob F., M.D., 1935 Poplar street, Philadelphia, Pa.
Homans, Amy Morris, Normal School of Gymnastics, Huntington avenue, Boston, Mass.
Hopkins, Alice J., 9 Franklin avenue, Chelsea, Mass.
Hopkins, Maude G., Drexel Institute, Philadelphia, Pa.
Horton, Clara J., 15 Grant place, Washington, D. C.
Hoskins, George W., Pittsburg Athletic Club, Pittsburg, Pa., East End.
Houghton, Bessie Marie, Hotel Oxford, Boston, Mass.
Hovey, Marian, 100 Beacon street, Boston, Mass.
Howell, Helen P., 24 Linden place, Brookline, Mass.
Howell, Mary H., St. Mary's School, Knoxville, Ill.
Howland, John A., Auburn, R. I.
Hubbard, Charles W., 133 Essex street, Boston, Mass.
Hubbard, Mary, "The Warren," Roxbury, Mass.
Hughes, Annie R., Anderson Gymnasium, New Haven, Conn.
Hughes, Laura A. C., M.D., 437 Boylston street, Boston, Mass.
Huling, Ray Greene, 101 Trowbridge street, Cambridge, Mass.
Hull, Miss M. L., 248 Hamilton street, Albany, N. Y.
Huntley, Mrs. Emma Manning, 1066 Middlesex street, Lowell, Mass.

Hutchinson, Rachel Lloyd, Swarthmore College, Swarthmore, Pa.
Ireson, Janie E., 185 West Canton street, Boston, Mass.
Jackson, W. A., Jr., 1214 Eutaw place, Baltimore, Md.
Jacob, Anna Gertrude, State Normal School, South Manchester, Conn.
Jacobs, Sarah J., 1515 Georgia Bell street, Los Angeles, Cal.
Jacobus, Sarah, 140 Beacon street, Boston, Mass.
James, Francis B., Pike building, Cincinnati, O.
Janney, Hannah H., 1807 Bolton street, Baltimore, Md.
Jennings, Mary Kirby, 43 West street, South Norwalk, Conn.
Johnson, Fanny L., Wollaston, Mass., Box 480.
Johnson, Florence May, Spencer, Mass.
Johnson, Louise A., 6 Rockland avenue, Roxbury, Mass.
Johnson, Theodore G., 29 Wendell street, Cambridge, Mass.
Jones, E. A., Superintendent Public Schools, Massilon, O.
Jones, Katherine C., Prospect place, East Elm street, Zanesville, O.
Jones, L. H., Superintendent, 190 Euclid avenue, Cleveland, O.
Jones, Mary M., 1710 Chestnut street, Philadelphia, Pa.
Jordan, Ella C., 178 Newbury street, Boston, Mass.
Joslin, Alice B., 46 Burroughs street, Jamaica Plain, Mass.
Kallenberg, Henry F., 153 La Salle street, Chicago, Ill.
Kellogg, J. H., M.D., Battle Creek, Mich.
Kerr, Agnes J., 148 Chandler street, Boston, Mass.
Kidd, Eliza, 27 Water street, Newburgh, N. Y.
Kimball, G. W., M.D., Vassar College, Poughkeepsie, N. Y.
Kimberlin, Nettie D., 591 Case avenue, Detroit, Mich.
Kincade, Katherine J., 22 Sadler street, Gloucester, Mass.
Kindervater, A. E., 1508 Chauteau avenue, St. Louis, Mo.
Kinnicutt, William H., Y. M. C. A. building, Cleveland, O.
Koehler, Charlemagne, Pike building, Cincinnati, O.
Koehler, Mrs. H. J., West Point, N. Y.
Koehler, H. J., West Point, N. Y.
Knapp, John B., 62 West 51st street, New York, N. Y.
Knoch, Arthur, Walnut Hills High School, Cincinnati, O.
Krimmell, J. P., Y. M. C. A., Terre Haute, Ind.
Kroh, Carl J., 6817 Honore street, Chicago, Ill.
Kuhn, Esther, 429 Green street, Philadelphia, Pa.
Kuhn, Miriam, 429 Green street, Philadelphia, Pa.
Lambeth, W. A., M.D., University of Virginia, Charlottesville, Va.
Landon, Captain T. D., Military Institute, Bordentown, N. J.
Lane, Annie S., State Normal School, Monmouth, Oregon.
Lang, C. G., M.D., Adelbert College, Cleveland, O.
Langworthy, M. F., 1134 Case avenue, Cleveland, O.
Lawrence, Miss C. T., 45 East 29th street, New York, N. Y.
Lawrence, Mrs. M. S., 26 West 61st street, New York, N. Y.
Lee, Nina M., 317 East State street, Trenton, N. J.
LeGarde, Ellen, 10 Mawney street, Providence, R. I.
Lehr, Frederick, 656 Lorain street, Cleveland, O.
Leibold, Anton, 345 East Kossuth street, Columbus, O.
Leiter, Mrs. Francis W., Mansfield, O.
Leonard, F. E., M.D., Oberlin College, Oberlin, O.
Leonardt, Joseph, 1582 Wilson avenue, Cleveland, O.
Leveau, Emma, 32 Beacon street, Gloucester, Mass.
Leyerzapf, Louis, 545 Grand avenue, New Haven, Conn.
Libbey, Bessie M., 37 Maple street, Stoneham, Mass.
Lincoln, D. F., M.D., 73 Pinckney street, Boston, Mass.

Lindley, E. Marguerite, Murray Hill Hotel, New York, N. Y.
Llewellyn, Miss E., Liberty street, Newburgh, N. Y.
Locke, Mary S., 95 Pinckney street, Boston, Mass.
Loehnert, Mr., Cleveland, O.
Longstreth, Wm. W., 505 Pine street, Philadelphia, Pa.
Lorett, John, 705 W. Franklin street, Baltimore, Md.
Ludlum, Mrs. Mary Hogan, 2901 Lucas avenue, St. Louis, Mo.
Lyman, Herbert.
Lyman, Mary E., Bradley Polytechnic Institute, Peoria, Ill.
McCastline, W. H., 318 W. 57th street, New York, N. Y.
McComber, S. A., Worcester Academy, Worcester, Mass.
McDougal, Evelyn, Y. W. C. A., Detroit, Mich.
McElroy, Emily, 274 McDonough street, Brooklyn, N. Y.
McIntire, H. J., Miami University, Oxford, O.
McKenzie, B. E., M.D., 14 West Bloor street, East Toronto, Can.
McKenzie, R. Tait, M.D., 59 Metcalfe street, Montreal, Can.
McKibbin, Miss M., 88 Montgomery street, Newburgh, N. Y.
McLean, Agnes M., State Normal School, Baltimore, Md.
McNamara, Jessie, 773 Tremont street, Boston, Mass.
McPherson, Mrs., Trenton, N. J.
Maccarty, Martha E., 215 Brattle street, Cambridge, Mass.
Mackie, Miss E. J., 160 Grand street, Newburgh, N. Y.
Mackie, Miss J. W., 160 Grand street, Newburgh, N. Y.
MacMartin, Elizabeth C., 115 Union avenue, Mount Vernon, N. Y.
Macomber, Mary Scattergood, 54 Kirkland street, Cambridge, Mass.
Magee, Walter Edmund, University of California, Berkeley, Cal.
Mann, Mary Ida, Ypsilanti, Mich.
Marks, Helen, 400 Greenwood avenue, Detroit, Mich.
Marshall, Mary Tilden, 2017 Wallace street, Philadelphia, Pa.
Marsland, Clara, Olivet, Mich.
Martin, W. H., Cooperstown, N. Y., Box 667.
Mathews, Clara A., 127 Prospect place, Brooklyn, N. Y.
Maxwell, Juliette, Indiana University, Bloomington, Ind.
May, Eva G., Vassar College, Poughkeepsie, N. Y.
May, George, Yale Gymnasium, New Haven, Conn.
Mayhew, Abbie S., 808 Nicollet avenue, Minneapolis, Minn.
Mead, Tilson A., 32 Monmouth street, East Boston, Mass.
Mellen, E. D., 9A Forest street, North Cambridge, Mass.
Mendelsohn, Walter, M.D., 159 West 74th street, New York, N. Y.
Menges, John F., 498 Scoville avenue, Cleveland, O.
Metzner, Henry, 212 East 83d street, New York, N. Y.
Meylan, George L., M.D., Y. M. C. A., Berkeley street, Boston, Mass.
Mickle, Maud M., 328 Ashland avenue, Buffalo, N. Y.
Miller, Caspar W., M.D., Wallingford, Pa.
Miller, Sarah E., Girls' High School, Boston, Mass.
Miller, Warren J., Y. M. C. A., Franklin, Pa.
Miner, Edith E., Classical School for Girls, Pasadena, Cal.
Minot, J. J., M.D., 188 Marlborough street, Boston, Mass.
Mitchell, Frances, 31 Martin street, Cambridge, Mass.
Moberg, Anna, 249 Berkeley street, Boston, Mass.
Monahan, Otto F., The Hotchkiss School, Lakeville, Conn.
Moon, Schuyler B., McDonogh School, McDonogh, Md.
Moore, Henrietta F. R., 117 Edmund place, Detroit, Mich.
Moreley, Ada M., 287 Clinton street, Brooklyn, N. Y.
Morgan, Anna, New Paltz Normal School, Poughkeepsie, N. Y.

Morgan, Professor Anne Eugenia, Wellesley College, Wellesley, Mass.
Morril, Charlotte J., Norwood, Mass., Box 5.
Morris, R. Anna, 564 Prospect street, Cleveland, O.
Morse, Adelaide, 237 York street, New Haven, Conn.
Morse, Ella J., Cleveland College for Women, Cleveland, O.
Morse, Francis A., 120 Corey street, West Roxbury, Mass.
Mosher, Eliza M., M.D., University of Michigan, Ann Arbor, Mich.
Mott, Emma L., 62 Catherine street, Poughkeepsie, N. Y.
Moulton, Edward Seymour, M.D., 233 York street, New Haven, Conn.
Mulliner, Mary Rees, M.D., 160 Newbury street, Boston, Mass.
Mumford, J. G., M.D., 197 Beacon street, Boston, Mass.
Munger, Miss E. Van A., 218 Washington avenue, Brooklyn, N. Y.
Murdock, F. F., Bridgewater Normal School, Bridgewater, Mass.
Murray, Henrietta A., 66 Jacques avenue, Worcester, Mass.
Narey Hope W., Durant Gymnasium, Berkeley street, corner Appleton, Boston, Mass.
Neilson, Jennet D., 24 Church street, Norwich, Conn.
Newcomb, Lydia J., Moravian Seminary, Bethlehem, Pa.
Nichols, Agnes Lee, 158 West Newton street, Boston, Mass.
Noble, Mrs. E. C., 60 Edmund place, Detroit, Mich.
Nohr, Robert A., North Cincinnati Turner Hall, Cincinnati, O.
Norris, John O., Melrose, Mass.
Norvell, Pearl Eleanore, Columbia, Mo.
Nye, Jane, 720 Kansas avenue, Topeka, Kan.
O'Connor, Mary Josephine, 167 Camp street, Providence, R. I.
Ocker, W. A., M.D., Hughes High School, Cincinnati, O.
Oliver, Henry K., M.D., The Union Club, Boston, Mass.
Oothout, Augusta, 399 Prospect street, Cleveland, O.
Otis, Edward O., M.D., 308 Commonwealth avenue, Boston, Mass.
Owen, Amelia L., 66 Marlborough street, Boston, Mass.
Page, Niña A., State Normal School, Platteville, Wis.
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Palmie, Therese K., 16 Rutland street, Cambridge, Mass.
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Parks, Fred'k T., 19 Congress street, Boston, Mass.
Peabody, Frank E., 120 Commonwealth avenue, Boston, Mass.
Pease, Nettie A., Spencer, Mass.
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Pennycook, Jean, 158 East Elizabeth street, Detroit, Mich.
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Peterson, Ellis, 305 Chestnut avenue, Jamaica Plains, Mass.
Pettit, H. S., M.D., Adelphi Academy, Brooklyn, N. Y.
Pfister, Franz, M.D., 731 3d street, Milwaukee, Wis.
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Pierce, J. M., 119 Myrtle street, Boston, Mass.
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Poole, George F., M.D., 786 State street, Springfield, Mass.
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Schetky, Mary E., 4851 Fairmount avenue, Philadelphia, Pa.
Schlesinger, B., 245 Marlborough street, Boston, Mass.
Schmidt, F., Wellingford court, Cleveland, O.
Schmitt, Louis, 42 Forbes street, Jamaica Plain, Mass.
Schneidlreith, Louis C., 208 South Sharp street, Baltimore, Md.
Schofield, Blanche, 1119 Broadway, Spokane, Washington Territory.
Scholtz, Karl, A.M., 108 East Saratoga street, near St. Paul street, Baltimore, Md.

Schulz, C. F. E., 1102 Myrtle avenue, Baltimore, Md.
Seabrook, H. H., M.D., 118 East 72d street, New York, N. Y.
Seaver, Jay W., M.D., Yale University, New Haven, Conn.
Seerley, F. N., M.D., Y. M. C. A. Training School, Springfield, Mass.
Seibert, Herman, 582 East 157th street, New York, N. Y.
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Talbot, W. T., M.D., 685 Boylston street, Boston, Mass.

Taylor, Fred'k W., M.D., 1797 Massachusetts avenue, Cambridge, Mass.
Taylor, Henry Ling, M.D., 117 West 55th street, New York, N. Y.
Taylor, J. B., Berkeley School, Boston, Mass.
Taylor, Mabel H., 300 Elizabeth street, New York, N. Y.
Taylor, S. May, 17 Yarmouth street, Suite 9, Boston, Mass.
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Walker, Isabel F., State Normal School, Whitewater, Wis.
Walker, Myrtle, Berkeley, Cal., Box 103.
Wall, C. F. B., 126 Benton street, Springfield, Mass.
Wallace, George W., 54 West 120th street, New York, N. Y.
Wallace, Margaret S., Newtonville, Mass.
Wallin, Mathilda K., M.D., 78 Park avenue, New York, N. Y.
Walton, Mrs. E. R., Central High School, Washington, D. C.
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Wardwell, Margaret S., 9 Lowell street, Cambridge, Mass.
Warren, M. Alice, West Newton, Mass.
Waterman, Grace L., 1537 First avenue, Watervliet, N. Y.
Watson, H. G., Yale University Gymnasium, New Haven, Conn.
Weeden, Ethel Rubie, S. C. Institution for the Education of the Deaf and Blind, Cedar Spring, S. C.
Wegener, A. B., 153 La Salle street, Chicago, Ill.
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Welzmiller, Louis R., Jr., 318 West 57th street, New York, N. Y.
Wentworth, Mabel Rebecca, 6412 Eggleston avenue, Chicago, Ill.
Wentz, Miss, 248 Hamilton street, Albany, N. Y.
Werner, Guido, West Cincinnati Turner Hall, Cincinnati, O.
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Wey, Hamilton D., M.D., State Reformatory, Elmira, N. Y.
Whitney, Jean, 21 14th street, Ann Arbor, Mich.
Whitney, Jessie A., 514 Erie street, Port Huron, Mich.
Whittier, F. N., M.D., Bowdoin College, Brunswick, Me.
Wiggins, Alta, 1172 East 1st South street, Salt Lake City, Utah.
Wikel, Henry H., 502 Fulton street, Brooklyn, N. Y.
Wilbur, Helen L., East Providence, R. I., Box 556.

Wilkinson, Miss E., Mills street, Poughkeepsie, N. Y.
Williams, Alice M., 43 Ingell street, Taunton, Mass.
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Williams, C. M., Temple College, Philadelphia, Pa.
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Wilson, Jennie B., Sanatory Gymnasium, Cambridge, Mass., Church street.
Wilson, M. Caroline, 143 Main street, Watertown, Mass.
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Winter, Magnus F., 401 Palisade avenue, Jersey City, N. J.
Wolcott, Grace, M.D., 68 Marlborough street, Boston, Mass.
Wood, T. D., M.D., Leland Stanford, Jr., University, Palo Alto, Cal.
Woodward, Katherine, 129 Beaufort street, London, S. W., Eng.
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Wright, Elizabeth M. Tate, Pickens Co., Ga.
Youmans, Paul H., 911 Sumter street, Columbia, S. C.
Young, A. G., M.D., Augusta, Me.
Young, Evaline, Girls' High School, 2046 Park avenue, Philadelphia, Pa.
Young H. Alfred, 81 South Prof. street, Oberlin, O.
Zapp, Karl, M.D., 681 Woodland avenue, Cleveland, O.
Ziegler, Carl, 3232 Bishop street, Cincinnati, O.

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III. THE OLYMPIC GAMES IN ANCIENT TIMES.

EDWARD M. PLUMMER.

The third event of the pentathlon was spear-throwing. In the athletic training of an Hellenic youth, spear-throwing came after the hand and arm had been strengthened by ball-playing and diskos-throwing.

Spear-throwing, as has been shown, growing out of the very early necessity of war-training, was a primitive mode of exercise. The spear (δόρυ, λόγχη) used by the Homeric heroes was very large, and as heavy as they could handle effectively. None but that warrior himself could wield the spear of Achilles. Hector's spear was 16 feet long; the shaft was made of ash. A socket was fitted to the upper end of the spear, in which was inserted a bronze spear point. But that used at the pentathlon, and denoted by the term ἄκων, was smaller and lighter.

The attitude of the body, the movement of the arms and shoulders, and the carriage of the head were very different in spear-throwing from those in diskos-hurling. The athlete stood erect, and raised his right arm upward and slightly backward; his right foot was generally placed backward, while his left was advanced; his eye was fixed on a goal straight ahead. He grasped the spear in the middle and held it in a horizontal position on a level with his right ear; sometimes he moved it backward and forward before throwing, but as often omitted such preliminary exercise. Sometimes it was thrown by means of a strap attached to it, as is still the custom in many countries.

In the pentathlon, spear-throwing was a test rather of skill than of strength; an athlete who could win the victory with the diskos might suffer defeat with the spear, although diskos-throwing required more strength than spear-throwing. Spear-throwing trained the eye and made the arm deft in executing the eye's direction.

It conferred upon the body other peculiar benefits; the organs of respiration were stimulated; the chest was strengthened and enlarged; the right arm was strengthened; in order to throw the spear effectively the athlete must maintain a graceful poise and have command of his entire body; to do so with a weight held aloft, strengthened the lower limbs, made their muscles more facile, and the step more sure.

By inserting this particular exercise into the pentathlon the early Olympians not only recognized the foregoing advantages, but they also honored the characteristic exercise of their ancestors, and subsequent Olympians followed their example. For the spear was the traditional sign of the freeman; as far back as myth and memory could go, it had been carried, even in peace, as an honorable and distinguishing token.

Plato, in his scheme of the ideal state, prescribed spear-throwing as a training for war, and directed that it should be practiced by women as well as by men.

At Rome, during the time of the emperors, spear-throwing was included among the gymnastic exercises of that city. Instruction in this art was received from the Mauritanians. But it is said that the Emperor Commodus surpassed even the skill of his instructors; in the amphitheatre he killed, according to the story, a hundred lions with as many spears; at another time he astonished the spectators by the dexterity with which he hurled his spear at the Mauritanian ostriches, as they ran by the amphitheatre at full speed; with every throw he severed a bird's head from its body.

We have no accounts to show as to how far a Greek athlete could hurl a spear, but we know that savages of today can hurl it to a great distance. It is said by travellers that a Kaffir who suddenly comes upon game will hit an antelope ten or fifteen yards away without raising his arm.

The three events that have been described, leaping, diskos-throwing and spear-throwing, were probably the essential features of the pentathlon; that is to say, an athlete who won in all three events was probably crowned victor. If, however, the victories in the three events were not secured by the same man, the competition was decided by additional contests in running and wrestling. But as at other stages of the festival these two exercises were distinct events, a description of their technique may be omitted in this place. Among those who distinguished themselves in the pentathlon, were included some of the most illustrious men of Greece.

The pentathlon was succeeded by horse and chariot races.

Chariot racing, even as far back as the heroic time, had attained a high rank in the domain of antagonistics; it was, indeed, the first contest in the funeral games of Patroklos. (Il. xxiii. 262-650.) In the minute and vivid description of Homer, the nature of the contest and the arrangements are very clearly indicated. There was no artificially constructed hippodrome. A flat, open plain, with its natural irregularities and without buildings of any sort, served as the race-course. The point of starting was on the sea-coast, but the turning point was in the plain of Troy. The goal, which was the stump of a tree, could be seen in the far distance only by its having two white stones leaning against it on either side. On account of the great distance, the spectators were not able to distinguish between the approaching horses. (Il. 450 ff.) Hence rose an altercation between Idomeneus and Aias, as to whose chariot was leading in the race. Achilles advised both to wait quietly until the horses were nearer and the order of the chariots could be recognized by all.

With a very few points of difference, this description of Homer gives a good idea of a chariot race at Olympia. The difference consisted, first, in running the length of the course several times instead of once, in order that a body of spectators might witness the entire race; second, in the greater number of chariots, and third, in the arrangements, whereby they might start without confusion. In the games of Achilles, the chariots were five in number, each with two horses and a single driver, who stood upright in the chariot. As we have already mentioned, the Homeric hero made use of two horses in the race as well as in hostile combat, while the Olympic contestant did not limit himself to two horses. In fact, the four-horse chariot-race, which was introduced in the twenty-fifth Olympiad, was the first in honor and in importance, and always remained the most popular. In this contest, only kings, nobles, and the wealthy could take part, on account of the great expense involved in rearing fine horses, and in maintaining costly chariots. Very often, the victor had his triumphs recorded on the state issues of coins.

Races on horseback date from the thirty-third Olympiad. Philip of Macedon won in this contest, and celebrated his victory by having an enormous horse, ridden by a diminutive jockey, placed on his coinage. As this victory took place in the same year in which Potidaea fell into his hands and his son Alexander was born, he regarded that year as especially auspicious.

While the race of the quadrigæ of horses was introduced as early as the twenty-fifth Olympiad, that of the bigæ of horses was not introduced until the ninety-third Olympiad. A quadriga consisted of four horses harnessed to a chariot; a biga, of two horses. In the seventieth Olympiad, bigæ of mules were admitted, but in the eighty-fourth Olympiad they were excluded; their exclusion may be ascribed to two reasons: first, they presented an unpleasing appearance; second, among the Eleians, according to Pausanias, a curse had rested on the animals from ancient times.

Prior to the twenty-fifth Olympiad, all athletic contests had taken place in the Stadion. As chariot-racing, however, demanded more room, a separate race-course, called the Hippodrome, was established. The site of the Hippodrome cannot be exactly traced. This is because the Alpheios has washed away all certain indications of its limits. But from the account of Pausanias (V, 4; VI, 20, 7 foll.) it may be approximately located; it lay to the south of the Stadion and extended roughly parallel with it, though stretching far beyond it to the east. The German explorers who excavated Olympia inferred from the state of the ground that the Hippodrome was about 2526 feet in length. The Stadion and Hippodrome were closely connected, the rear part of the aphesis, or starting point, of the Hippodrome adjoining the end of the Stadion. At the farther end of the Hippodrom was the goal outside of which the chariots had to turn. To round this goal with advantage, that is, to keep as close to it as it was possible to do without upsetting his own chariot or colliding with another, required long practice and great dexterity on the part of the driver; it was indeed a very dangerous feat; at every race a large number of the chariots involved were wrecked, and in such accidents the charioteers rarely escaped without serious injuries. According to legend, Orestes had met his death at a Pythian festival; his chariot colliding with the goal, he fell to the ground, became entangled in the reins, and was dragged or trampled to death. After every turning of the goal, the chariots were greeted with the sound of trumpets in order that men and horses might attain new courage and vigor after so dangerous an ordeal.

The signal for the chariots to come out from the rooms allotted to them in the aphesis and form in line for the race was given by an eagle which, by means of mechanism, rose into the air at the same moment that a dolphin fell to the ground. Such a signal was characteristic of the Greek; but in the Roman races, the chariots started at the waving of a white cloth by a person of distinction.

The equestrian contests at Olympia were succeeded by boxing. Boxing for men was introduced at the Olympic festival in the twenty-third Olympiad, and for boys in the thirty-seventh Olympiad. But the sport was already very old, and its introduction at Olympia was probably a recognition of its popularity and antiquity. In fact, as the fist is the simplest and most natural weapon of mankind, it is not surprising to find that boxing was one of the earliest athletic games among the Hellenes. Homer's detailed description of the contest of the invincible Epeios with Euryalos has already been mentioned, and Homer had probably heard many similar tales of the prowess of Mycenean boxers. Polydeukes, the bravest boxer among the pre-Homeric heroes, is said to have defeated the strong Amykos. The latter was a teacher of the art, and allowed no stranger to depart from his country without challenging him to a pugilistic contest. Apollo himself, the gracious companion and leader of the Pierides, is described as engaging in a boxing contest at Olympus with Ares, the powerful god of war; perhaps in this myth there is a suggestion of the advantage which the nimble and quick-witted boxer sometimes has over a more bulky one. In the mythical founding of the Nemean games, Tydeus was victorious in a boxing contest. In the passage of Virgil's Æneid (Book V, 401 ff.), which so closely resembles the twenty-third Book of the Iliad, the aged

Entellus vanquishes the young and boastful Dares. This contest showed a complete system of striking and parrying.

It is quite likely that these and many other similar legends augmented the natural interest in the sport, and hastened its introduction into the greatest of all athletic festivals. But at Olympia the sport was marked with variations. Whereas, for instance, the Homeric heroes, when boxing, had protected their bodies by means of a girdle around the loins (Il. XXIII, 683), the Olympian athletes, being already accustomed to nudity in the wrestling and racing contests, dispensed with such protection. Again, from the first, Olympian boxers oiled the body, contrary to the practice of Homeric athletes.

Probably very few of the tactics of modern pugilists were unknown to the Greek athletes. Some of the accessories of a modern ring-fight, such as the "preliminary hand-shake," tossing for corners, etc., were of course wanting; particularly noticeable was the absence of ropes and stakes; there was no referee to enforce so strict a code of ethics as the Marquis of Queensberry rules, fair play being secured by the voice of the people. Grasping or hugging the opponent was not permitted; it was in the elimination of such tactics that boxing differed from the pankration, a combination of boxing and wrestling. Kicking was likewise forbidden.

The set-to of Greek boxers probably resembled very closely that of modern pugilists. The ancient descriptions of the manner of giving and guarding or blocking blows are rather vague; but on antique vases may be seen representations of boxers facing one another in well-balanced attitudes, their heads thrown back, and their arms well advanced, in the manner of the best modern pugilism. In a famous Greek painting of boxers, one of the men stands with his left foot and hand advanced, his left arm slightly bent, and his right arm held across his lower chest, in fact, just as Fitzsimmons or Corbett would stand when expecting a blow. In the beginning of the contest, the boxer was sparing of his strength and preferred to assume the defensive position, and so wear out his opponent. It was, of course, considered a merit for a boxer to conquer without receiving wounds.

The principal differences between the technique of Olympian boxing and that of modern pugilism must be ascribed to the use at Olympia of that cruel boxing weapon known as the cæstus.

This consisted of a heavy thong of dry, hardened leather, wound about the palm of the hand so as to form a formidable ridge of considerable circumference; it was even rendered more formidable by being loaded with lead, and studded with little metal projections. This nail-studded covering was called *σφαῖρα*, and was unknown to the ancient Greeks. That it was very dangerous is shown by the fact that when used in the practice gymnasia, it was itself covered, in order that young athletes might become accustomed to its use before subjecting themselves to its deadliness. But even more brutal than these were the *μύρμηκες*, called the breakers or crushers of limbs. One cannot conceive of a more formidable covering for the hand, unless it be the terrible cæstus of the Romans, to which Virgil alludes in the memorial games of Anchises (Æn. V, 401): "Tantorum ingentia septem Terga boum plumbo insuto ferroque rigebant." "So terrible was the seven-fold bullhide stiffened with patches of lead and iron." An examination of the representations of hands armed with this covering makes it evident that the straight blow or counter would not only fail to make the weapon effective, but would, if forcible enough, crush the fingers of the boxer between the leather and the adversary's body. The cæstus must, therefore, have been used for round blows, or for the old English blow called the "chopper"; these were delivered by the back of the hand in an outward and downward swing, and, to be given without injury to the one who dealt them, required considerable skill.

The blows were directed at the upper parts of the body, and the wounds inflicted on the head, the temples, ears, cheeks and nose, were very severe and frequently proved fatal. The teeth were often broken or injured. It is related of Eurydamas, the Cyrenean, that his teeth were knocked out by his adversary, but that he quietly swallowed them in order to conceal from him how much he was injured; his adversary, disheartened by the apparently small effect of his powerful blow, lost hope and allowed Eurydamas to win the victory. The ears, especially, were exposed to great danger, and those of regular pugilists were usually so mutilated and swollen that the phrase "fighter's ear" became a stereotyped expression. Little covers for the ear, known as *αὐφώτιρες*, were invented for gymnasium work, but they were not used in public games. Boxers, on account of the bruises and disfigurations that usually marked their features, were the subjects of numerous epigrammatic jests. Here is a sample from the pen of a comic poet:

"After twenty years," says the author of the epigram, "Ulysses was recognized from his appearance returning to his home, by his dog, Argos. But thou, Stratophon, after boxing for four hours, hast been so altered, that neither dogs nor any person in the town could possibly recognize thee. And if thou lookest at thy face in a mirror, thou thyself wilt swear that thou art not Stratophon."

Of the boxer Olympikos, a poet says that he once had a nose, a beard, eyebrows, ears and eyelids, but that when he had inscribed his name among the pugilists he lost them all.

The only protection against the wound-dealing cæstus, aside from skill in blocking blows, was a cap of bronze that was worn by boxers at Olympia.

Another noteworthy point of difference between Olympian and modern boxing is that instead of maintaining silence during the contest, as do the moderns, the Olympians accompanied their blows with certain inarticulate sounds, believing that their force was thereby increased. Modern stone-masons frequently do the same.

The contest at Olympia did not end until one of the combatants was rendered unconscious, or was compelled by fatigue, wounds or despair to declare himself conquered, which he signified by lifting his right hand.

In this connection it is interesting to trace the evolution of boxing in Greece. At first, of course, the bare fist was used; but as time went on, boxers learned to cover their fists and wrists with strips of undressed ox-hide, the *ἱμάντας ἐΰτμήτους βοὸς ἀγραύλοιο* in the contest of Epeios and Euryalos (Il. XXIII, 684). Homer mentions these *ἱμάντες* as if they were very common. The name *μειλίχαι* was given them by later writers, because they dealt a mild blow; they are described by Pausanias (VIII, 40, 3) as made of raw ox-hide, cut into thin strips and braided according to the custom of the ancients. The strips were wound round the palm, leaving the fingers uncovered, at least enough so that they could be bent to form a clenched fist. As the name indicates, the *μειλίχαι* were not cruel weapons; they served not only to moderate the force of the blow, but also to protect the hand from injury. They were used at the Nemean games as late as the famous contest between Kreugas and Damoxenos. It is likely that with these soft coverings the technique of blows conformed more nearly with the modern technique. It has been already shown that the straight counter was rendered impracticable by the cæstus. But without the cæstus the Greek was very skillful with this blow. The Greek also understood the advantage of the cross-counter, a blow sometimes thought to be a comparatively recent discovery in pugilism. If the Homeric description of the bare-handed fight between Odysseus and the impudent ruffian and parasite, Iros, be analyzed, the blow will be found plainly involved. Iros, who is of gigantic size, has insulted Odysseus. A ring is formed and they begin to fight (Od. XVIII, 73-231).

> "On his right shoulder Iros laid his stroke,
> Odysseus struck him just beneath the ear,
> His jaw-bone broke, and made the blood appear,
> When straight he strewed the dust."

The blow of Odysseus must have been a cross-counter. Iros leads with his left at Odysseus' head, but the blow falls instead on his right shoulder. Odysseus avoids the blow just as a trained boxer would avoid a similar one today; that is to say, he moves his head to the left, and catches the blow on his right shoulder, at the same moment, "rising to the stroke." He then crosses Iros' arm with his right, strikes him beneath the ear, and breaks his jaw, thereby "knocking him out."

The introduction and use of the cæstus, brought about by the blood-thirstiness of the ancient mob, instead of being in the interest of further skill was decidedly a backward step. For not only did it improperly limit the technique of blows, as has been shown, but it was too sure a menace to the very source of human skill, the senses and consciousness itself.

Solon praised boxing from an educational point of view. Cato the elder must have entertained a high opinion of this art, for, according to Plutarch, he himself instructed his son, with whose education he took the greatest pains, in the art of boxing.

In justification of this praise, it must be remembered that Greek boxing, aside from its brutal features, had also its æsthetic side. A graceful carriage, dexterity, and promptness of activity were cultivated. We find Apollo, the embodiment of youthful grace and beauty, and the ideal of Hellenic æstheticism, represented as a boxer. Even from the medical point of view, boxing was highly esteemed. Aretaios recommends it for vertigo and chronic headache (De Morb. Dint. Cur. 1, 2).

This sport engaged young men of the noblest families in all parts of Hellas. Pythagoras is said to have been victorious when a youth in a boxing contest at Olympia. Rhodes, Ægina, Arkadia and Elis were noted for producing skilled pugilists.

Boxing was followed by wrestling and the pankration which were the final competitions. As is well known, wrestling was one of the most popular sports among the Greeks, from the days of Homer. According to mythology, Palaistra, the daughter of Hermes, established the πάλη, while her brother, Autolykos, is mentioned as the instructor of the young Herakles in this art. Plato also assigns the origin of wrestling to the earliest times and declares Antaios and Kerkyon to be the most ancient wrestlers. But the mode of wrestling was the result of a mere desire to fight, and so did not develop wrestling as an art. Theseus is said to have been the first to reduce it to a system and to practice it according to definite rules. We have already mentioned how Homer, in the games of Achilles, causes the powerful Telamonian Aias and Odysseus to engage in a wrestling bout. Wrestling matches were among the chief events in the famous games at Olympia and elsewhere. They were introduced earlier than boxing and were believed to show off the strength, activity and grace of the body to more advantage than any other contest. No other exercise required such perfect development of every muscle in the body, or an equal combination of strength and agility.

Plutarch calls wrestling the most artistic and cunning of athletic sports. It was as full of tricks and feints as that of modern times. The opponent was often deceived by feigned positions and movements. Sometimes the wrestler would feint as if to grasp his adversary in a certain place, but by a quick, cat-like movement would attack him in another which had been left exposed. Cunning was likewise practiced by the Homeric heroes. Odysseus overpowered Aias by striking him in the hollow of the knee. But while wrestling was characterized by tricks, the observance of certain rules was insisted on at Olympia. Striking, kicking, and pushing were prohibited, but, strange to say, disjointing an opponent's fingers was allowed, probably on the ground that it involved grasping.

While the Greeks in their athletic sports sought for grace and symmetry as well as strength, it is nevertheless true that their wrestlers were noted for their bulk. Corpulency was considered advantageous for a wrestler for two reasons: first, the increased weight rendered it less easy for an opponent to lift him off the ground; second, it was easier for him, on the other hand, to overpower his adversary at the opportune moment. Nevertheless, a graceful style of wrestling, while less easy to attain under this condition, was much sought after. And oftentimes grace is the concomitant of a skill that possesses a sure advantage over mere bulk. Very joyous were the Olympic spectators when this fact was demonstrated. When the boy Kratinos of Aigeira was victorious in a match in which skill was more apparent than mere strength, the authorities permitted him to have placed in the Altis not only his own statue, but that of his teacher. Pausanias says that Kratinos exhibited a more graceful style than any other wrestler of his time.

Two modes of wrestling were in vogue at Olympia, standing and ground wrestling; the former, called the τριαγμός, was most common. The contestants stood upright, face to face, and after one had been thrown and had risen, the contest was renewed. This was the style practiced by the Homeric heroes. After Aias and Odysseus had thrown each other to the ground, they rose and continued the struggle. Victory was bought with three throws. Standing wrestling was practiced in later times at all the great games. Plato, especially, prefers this style, as it develops the upper parts of the body, the arms, shoulders, chest and neck. In the latter, or ground wrestling, when the combatants had fallen they continued the struggle on the ground, until one acknowledged himself conquered. This kind of wrestling belonged especially to the pankration, and like that cruel contest was unknown in heroic times. Solon, according to Lucian, claims that this mode is of great value as a preparation for war. Plato, however, does not so regard it. Dion Cassius, in his description of a battle between the Romans and the Jazyges on the ice of the Danube, claimed that in this particular instance, familiarity with ground wrestling was especially advantageous.

Of the numerous tricks, feints and holds practiced by the Greeks, the following were the most noteworthy. The antagonist endeavored to throw his opponent either by tripping him, or by grasping his foot with his hand. This latter style is differently illustrated on two vases. On the first vase the antagonist is represented as grasping with his right hand his opponent's foot, which he has raised to a line with the middle of his body, while with the left arm he is further raising the thigh, thus forcing his opponent to the ground. On the second vase, the contestant has raised his opponent's foot and is holding it up with the left hand, which is placed under the knee; both contestants are moving the right arm as if preparing to strike. This probably represents the pankration, as striking was not allowed in the wrestling bout. A similar illustration is seen on a coin; but here the antagonist, whose foot is held by his opponent, holds the latter in his arms in order to drag him down if he should fall.

Another trick, in which the athlete wound his leg around his opponent's thigh, was often practiced. This point is beautifully illustrated by the famous group of wrestlers in the Uffizi Gallery, Florence, of which a fine cast may be seen in the Boston Museum of Fine Arts. Winckelmann considers these wrestlers to be the sons of Niobe, as they were found in 1583 at the same time and place as the Niobe group. According to the legend, they were engaged in a wrestling match when slain by Apollo's arrows.

The technical names of the various locks and holds which have come down to us do not give a clear and definite idea of wrestling. If one of the Hellenic gymnastes, who must have written accounts of the different modes of wrestling, had left behind a complete list of movements, or if the most important parts of the literature bearing upon gymnastics and agonistics had been preserved, we might form a more definite conception of the wrestling match. To the student of athletics it may be interesting to mention a few expressions which have come down to us from this ancient nomenclature. The word *δράσσειν* which literally means to seize or grasp the hand, was probably applied to the alternate grasping of the arms. This movement is beautifully illustrated on many antique works of Greek art, especially on vases, gems and coins. It was one of the chief manœuvres of the wrestlers and might have occurred at the beginning of the contest. Plutarch designates the different modes of attack, position and manœuvres of the wrestlers by the terms *ἐμβολαί*, *παρεμβολαί*, *συστάσεις*, *παραθέσεις*, from which general conceptions may be formed, but hardly clear imagery. The following Greek words, *ὠθιομοί*, *πε-*

ριπλοκαί, λυγισμοί, which literally mean pushing, grasping and twisting the limbs, were used by Lucian to express different styles of wrestling. The terms *συναφή* and *κατοχή* used by Hesychios when speaking of athletics, can apply only to the wrestling match itself. The movement whereby the antagonist is forced from his position is described by the term *ἀπάγειν,* literally to lead away or carry off. *Ἄγχειν* and *ἀποπνίγειν* describe the grasping of the neck and choking, in order to prevent respiration. This trick of grasping the opponent's neck and then throttling him until he acknowledged himself conquered was considered a very cunning act. Sometimes the wrestler would obstruct respiration by forcing his elbow under the chin of his adversary, or he would attempt to bring the neck of the latter between his thighs and then exert such pressure as almost to strangle him. This occurred more frequently in the ground wrestling. On a gem is portrayed a group of boy wrestlers, one of whom, while resting on his right knee, is firmly holding by the throat his opponent, who is on both knees; to the right stands a prize vase with a palm, to the left, an umpire with a rod.

The *ἅμμα* involved grasping the opponent in such a manner that he could be held in a position that would tire him and perhaps exhaust his energy. Herakles in his wrestling contest with the mighty giant, Antaios, was believed to have used this trick; but Herakles held his antagonist in the air. Running toward each other with lowered heads for the purpose of butting, after the manner of rams, also belonged to the province of wrestling, and was practiced by Lucian himself in the Lykeion at Athens.

Plato protests against right-handedness (Laws, 8-794). He demands that a trained wrestler, pankratiast and boxer should be able to use both hands equally, so that if his opponent should succeed in turning him around he could defend himself from the other side. The wrestler would sometimes endeavor to place himself behind his adversary by a quick movement, then wind his leg around his opponent's body and throw him. If successful in this attempt he would choke him.

Besides these tricks there were others with the fingers. For instance, a wrestler would grasp his opponent's finger-tips and disjoint or break them, not letting go until the pain compelled his victim to declare himself conquered. This finger contest sometimes preceded the actual contest, and was oftentimes the only feature.

Sostratos of Sikyon was specially famed for this mode of contest; he was twelve times victorious in the Nemean and Isthmian, twice in the Pythian and three times in the Olympian games. Leontiskos of Messina, in Sicily, also practiced wrestling in this manner and gained his victory by breaking his opponent's fingers.

In ground wrestling the athlete even attempted to break his opponent's toes. Another special scheme which belonged to the standing wrestling was as follows: the contestant made a circle around himself and challenged his opponent to force him from his position. If the latter failed to do this, the victory belonged to the former. Especially noted in this style of wrestling was Milo of Crotona, the most famous wrestler of antiquity. When a mere boy he was victorious in the Olympic and Pythian games. Six times his head was crowned with the sacred olive of Olympia. Young men of the noblest families engaged in these wrestling contests. Plato, when a youth, is said to have been victorious in the Pythian and Isthmian games, probably in the wrestling match.

GYMNASTICS IN THE TREATMENT OF INEBRIETY.*

EDWARD COWLES.

The purpose of this brief paper is to note some of the results of the use of gymnastic exercises and baths in the treatment of patients in the Hospital for Dipsomaniacs and Inebriates at Foxboro, Mass. The facilities for the work there are very limited: an ordinary day-room, designed as a sitting-room for thirty-five patients, is made to accommodate classes in gymnastics amounting sometimes to one hundred and fifty or more. The arrangements for bathing are likewise inadequate; the shower-bath is used, but only by crowding a few men at a time in a very small room.

In 1895, a systematic method was begun of recording measurements made by machines, loaned from the Boston Normal School of Gymnastics until the hospital could procure its own. The system and the charts were those of Dr. Enebuske.

During the succeeding year, ending September 30, 1896, very satisfactory progress was made under the competent direction of Mr. Hermann, a graduate of the Boston school. The general results are summed up by Dr. Hutchinson, the superintendent of the hospital, in his annual report.

The patients under treatment in this hospital are committed to it in the same manner in which the insane are committed to their special hospitals, by the Courts. In the cases of dipsomaniacs and inebriates, the exception is made that they may be detained in the hospital two years. But it has been the rule to grant in each case a leave of absence, at the end of six months, under conditions which require the return of the patient if he relapses into his drinking habits.

The patients who come into the classes are in many cases but recently recovering from acute alcoholism, or suffering from the effects of long continued intemperance. As they present themselves for gymnastic training they show faulty attitudes, weakened organs of circulation and respiration, imperfect muscular coördination, diminished will power, and comparative inability to concentrate and apply their minds, with slow response to stimuli.

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* This paper by Dr. Cowles, Superintendent of the McLean Asylum for the Insane, who is also a trustee of the Massachusetts Hospital for Dipsomaniacs and Inebriates at Foxboro, was read at the January, 1897, meeting of the Boston Physical Education Society.

The resident director has given his whole time to the work for five days each week. The general rule is that the exercise is followed by a bath. Most of the patients attend the classes each day, some only two or three days each week, some receive massage treatment, while others take the bath only, due allowance being made for the peculiarities of constitution and temperament, age, previous and existing diseases, injuries and present strength or weakness. The benefit accruing to the patients from the well-directed use of exercise and baths is indicated by the following observed symptoms: increase of appetite and power of assimilation, increase in weight, greater firmness of muscles, better color of skin, larger lung capacity, more regular and stronger action of heart, clearer action of mind, brighter and more expressive eye, improved carriage, quicker response of nerves, and through them of muscle and limb to stimuli. All this has become so evident to them that only a very few are unwilling to attend the classes and many freely speak of the great benefit derived. The accompanying chart shows the actual and comparative results obtained in the cases of all the patients, fifty in number, who were discharged from treatment between April 1 and October 1 of the year 1896, and who had completed a six-months' course of treatment. They are arranged according to their ages, beginning with the youngest. The tests applied are with reference to weight, lung capacity and muscular strength, each patient being tested before entering upon the class work and again just before leaving the hospital. The results of the first examination are shown in the fourth, sixth and eighth columns, while the gain or loss in either respect is indicated in the fifth, seventh and ninth columns. At the bottom of the chart are shown the average results obtained through the several tests. In one of the cases there was perceptible loss of strength. The man on entrance had great strength of hand and forearm, due to work as a steam-fitter, which diminished through lack of customary use, then at an early date he sprained an ankle and did no class-work for a full month, after which he took part in a half-spirited, listless manner.

RESULTS OF PHYSICAL TRAINING TO FIFTY PATIENTS WHO WERE DISCHARGED ON FIRST LEAVE OF ABSENCE FROM APRIL FIRST TO OCTOBER FIRST, 1896.

Reg. Number	Occupation.	Age.	Weight.	Weight change	Lung capacity	L. C. Change	Strength	Strength change
567	Laborer	22	129	16	3.3	.8	427	200
603	Teamster	23	131	4	3.4	.5	437	110
690	Glasscutter	25	140.5	2	3.4	.5	422	130
691	Trocmoulder	25	130.5	3.5	3.2	.9	409	210
620	Steamfitter	27	134	25	2.7	1.3	482	110
694	Hackdriver	27	150.5	23	3.5	.2	474	200
661	Clerk	28	118	16	3.45	.1	365	160
653	Clerk	28	139.5	10	3.5	.4	427	85
631	Blacksmith	28	114.5	4	2.9	.3	496	160
610	Teamster	29	114	8.5	3.5	....	378	145
363	Bartender	29	143.5	15.5	3.6	.1	458	210
548	Shoemaker	29	113.5	4	3.5	.3	461	150
588	Clerk	30	143.5	13.5	3.3	.2	506	160
619	Milkhand	30	134	21	3.4	....	521	60
639	Fireman	30	112.5	18	3.4	.5	597	40
655	Compositor	31	118	17	3.4	....	423	120
612	Laborer	31	148	31.5	3.7	.2	458	160
611	Clerk	31	140	9.5	3.6	.4	493	140
642	Farmer	32	137	22	3.4	.3	402	140
553	Lawyer	33	115	8.5	2.6	1.1	390	120
645	Salesman	34	145	18.5	3.3	.4	604	270
643	Carpenter	34	162.5	16.5	3.7	.6	470	165
633	Salesman	34	122	—1	3.	.6	325	155
586	Collector	35	147	8	3.5	.5	520	120
557	Porter	35	148	26	3.7	....	433	110
585	Clerk	35	134.5	20	2.	1.9	520	80
533	Janitor	36	139	30	2.7	.2	496	140
606	Salesman	36	158.5	5.5	3.8	.1	683	—115
638	Morocco Dresser	36	142	—8.5	3.2	.5	392	90
607	Morocco Dresser	37	152	12	2.6	1.	333	290
608	Currier	37	140	38	3.5	....	314	200
551	Farmer	37	140	10	2.9	.6	344	135
505	Steamfitter	39	134	20.5	2.8	.3	589	20
540	Teamster	40	108.5	9	3.3	.3	425	140
564	Teacher	40	131	13	4.	.5	161	25
549	Machinist	40	136	21	4.2	.5	510	125
565	Baker	41	156	4.5	3.6	.5	483	110
527	Morocco Dresser	41	132	22	3.7	—.2	341	115
528	Salesman	42	126	5.5	3.4	—.1	388	90
595	Currier	42	170	36	3.1	1.	443	185
544	Painter	43	163.5	23	1.9	1.2	424	185
517	Clerk	45	114	14	3.4	....	348	110
576	Laborer	45	156	37.5	4.4	.3	580	60
613	Hackdriver	45	174	26	2.4	.2	300	230
545	Laborer	47	119	16	2.8	.3	341	30
600	Carpenter	48	134	5.5	2.7	.1	419	50
556	Boilermaker	48	130	28	3.5	.1	407	105
650	Reporter	48	132.5	4.5	3.1	.3	341	80
662	Provision dealer	49	153	21	3.8	.2	518	145
563	Agent	53	148	—4.5	2.1	.8	316	120

Column 1—Register number of Patient. Column 4—Weight when admitted. Column 5—Change in weight (in lbs.).* Column 6—Lung capacity when admitted. Column 7—Change in lung capacity.* Column 8—Strength when admitted (in kilograms). Column 9—Change in strength.*

*Columns indicating change should be read as increase except when marked (—) when they indicate decrease.

AVERAGE OF ABOVE INDEXES.

	When admitted.	When discharged.	Increase.	
Age	35.6	36.	.4	years
Weight	137.6	152.6	15.	pounds
Lung Capacity	3.25	4.035	.785	liters
Strength	436.	526.6	126.6	kilograms

September 30th, 1896.

ERNEST HERMANN.

It may be noted as a significant fact that of the fifty persons referred to in the table, only fourteen were over forty years of age, and all but one were under fifty years; nearly one-half of the whole number, two hundred and seventy, admitted during the year, were over that age. The inference is that not only are the younger men more susceptible to the benefits of the treatment, but that they take it more willingly. The experience of the hospital trustees has been such as to lead them to believe that the restoration of moral sense and self-control is greatly aided by a free use of the parole system; in consideration of good conduct the patients are given, after a few weeks, the liberty of the hospital grounds upon their word of honor not to escape. But many do break this pledge deliberately; and, although last year, half as many returned (many of them voluntarily), as eloped, the result was that about one-fifth of the whole number admitted stayed away. The foregoing analysis of the results of gymnastic treatment reveals the further interesting fact that it is the men under fifty years of age who best appreciate the benefits of treatment and stay through the required time of six months to get those benefits.

The curative effects of the work of the hospital show a decided increase during the last year in the larger number of those remaining abstinent after being regularly discharged. This is coincident with the fact that a larger proportion of the younger men were admitted than in previous years. These results are therefore in harmony with the obvious conclusion that the scientific therapeutic use of gymnastic exercises is demonstrating their fitness and value for the work at Foxboro, in the restoration not only of physical vigor but of mental and moral health.

(TO BE CONTINUED.)

EXERCISE DURING ADOLESCENCE.*

WALTER TRUSLOW.

However we may disagree with Carlyle in his proposition that it would be a real increase of human happiness were all young men confined under barrels until the age of twenty-five, we must see that the subject upon which he was writing, "The Training of Youth," is one of important interest.

During the period of adolescence there is rapid growth, with the formation of radical mental and physical habits, and it is therefore a critical time; the influence of city society and of the school curriculum is apt to be toward the implanting and development of tendencies decidedly prejudicial to healthy bodily growth. It is the privilege as well as the duty of the schools, with the coöperation, as far as possible, of municipal and legislative influence, to plan for the time and supply the place for proper out-of-door sports and indoor educative bodily exercise for its pupils.

There is considerable discrepancy in both the medical and lay uses of the word "adolescence," and of its kindred word "puberty." Some authorities employ them interchangeably. The Standard Dictionary defines adolescence as the state or period of growth from childhood to manhood, or from puberty to maturity. The Century Dictionary gives us an added idea, "the period of life between puberty and the full development of the frame." This use of the word seems to carry the most authority. But what of puberty? I like best the definition of Clouston of Edinborough. He limits the use of the word puberty to the initial development of the function of reproduction, or its first appearance as an energy in the organism. Adolescence he uses to express the whole period, of about twelve years, from the first evolution to the full perfection of the reproductive energy, when the bones are finally consolidated, and the full growth of the beard and the full development of the manly form in the male, and of the increased adipose tissue and other characteristics, which give the female form its perfect grace of contour, are accomplished facts. Lee and Austin Flint, Jr., both write of the "physiological epochs" in the life of the human being, naming them: prenatal; infancy, from birth to two years; childhood, from two years to twelve in girls and fourteen years in boys; adolescence, from twelve or fourteen to twenty or twenty-five in the young woman and the young man respectively; maturity, from twenty or twenty-five to a period varying physiologically both with conditions of environment and with sex, from forty-five to sixty, or even older; and senescence, from this period to death. During prenatal life, infancy, childhood and youth, the income to the organism is greater than the output, or, as Flint states it, "appropriation of new matter is a little superior to disassimilation"; during maturity, these factors are for the most part equal, the one balancing the other; while the period of maturity ends when the output from the body, the waste due to its functional activity, is greater than the possible supply, "and death follows as an inevitable consequence of life."

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* Read before the Physical Education Society of New York and vicinity, and the Section on Physical Education of the Brooklyn Institute, December 15. 1897.

The first quarter of a century of life thus seems to be one of growth. Lee calls it "progressive physiological modification." Why then should not this entire period occupy our attention? Valuable literature on the physical training of childhood has been presented, and much more study and observation is urgently needed on the subject. But the twelve years of life immediately following childhood, present their peculiar problems; and the exercise of that period is by no means the least of them.

Up to twelve years of age, small boys and girls may play together indiscriminately, and the girls are not always the first ones caught in "tag" or "black-man." I remember an enthusiastic girl, about twelve years old, who organized a base-ball team which she called the "Fem-i-nine," and it was a proud day for them and one of deeply-vowed vengeance on the part of the defeated team, when the girls beat the best boys' team of their own ages, the erstwhile undisputed champions in the neighborhood. That is indeed unusual among the children of our cities, but certainly the boys and girls of childhood have a much better chance for exercise than do their half-matured selves of a few years later.

When the age of thirteen or fourteen arrives, behold what a change. The girl is kept indoors; her walk to the cars or to school, the arms laden with books, is considered sufficient exercise. The very idea of exercise she learns to associate with the disagreeable things the doctor talks about. It is not amusing! No wonder, the heavily-laden arms and the monotonous streets, and even that walk is taken less and less. In its place are substituted six hours at school; another hour each for the music and dancing lessons; two to three hours more of home study, and not infrequently the theatre or parties in the evening. And why is all this? That she may be hurried along as fast as possible, so that as a débutante at eighteen, she may be fully equipped to take her place in social life—and I might add in the physician's waiting-room.

Her brother's lot during this time has been easier, on the whole. In the first place, he had about two years more of undisputed right to play before his rapid growth embarrassed him somewhat, and his guardians more, and he was warned that it was not seemly to romp as he used to. But his restraint at fifteen or sixteen is not so great as that placed upon his younger sister, and he may still go out to the ball-field after school, and society will make no objection to it. Pretty soon, however, he must get ready for college and must stand well in the entrance examinations, and this requires more hours from play to be put upon home study. Here again, a little perseverance and enthusiasm for athletics will outweigh parental objection and many of these "sub-freshmen" know that they will have to pass an examination before the foot-ball "coach," which will be just as critical and exacting, and far more interesting than the tests of their knowledge of mathematics and the languages, if they wish to get on the freshman or college team.

Is there any scientific excuse for society's demand that with the establishment of puberty, our youths, and especially the girls, should give up or at least greatly diminish active exercise? In answering this, we will first note some of the physiological changes of that period.

Up to puberty, growth has been one of steady increase in size and usefulness of all the organs of the body except the reproductive. Just before puberty, or from nine to thirteen years of age in girls, and from eleven to sixteen years in boys, there is a period of diminished rate of growth. With the onset of puberty there are two years of very rapid general growth. Bowditch, in his now classical tables of the measurements of Boston school children, has shown that for these respective two years, there is an average increase of growth of about two and three-quarter inches, and this corresponds with the testimony of those who have written from their clinical observations on the subject. Such physiologists as Austin Flint, Jr., Lee of Columbia, Michael Foster of Cambridge, England, Du Bois Reymond of Berlin, as well as specialists in medicine the world over, agree that growth in height is most rapid during these first years of adolescence.

There is marked increase of weight for this period. The bones increase in length, width and consequently in strength. All the major organs of the body grow larger. Money says, "the chest measurements increase by small amounts up to the time just previous to puberty, then rapidly during adolescence, and this corresponds with the development and growth of the lungs and heart." Of the circulation, he says, "The relation between the size of the heart and the width of the arteries is in children the reverse of what obtains in the adult"; and gives these interesting figures, "The ratio of the volume of the heart to the width of the ascending aorta, before puberty is approximately as fifty-six to twenty; whilst after puberty it is as ninety-seven to twenty," which means that there is almost double the volume to the heart's capacity, and as the size of the aorta remains approximately the same, there is a corresponding increase in the blood pressure of the systemic arteries. Money also points out that the ratio of the weight of the blood to that of the body is increased after puberty. Besides these, and most important of all, especially in the female, are the changes due to sex.

Surely here is constitutional disturbance enough to require the utmost care. Here are the boys and the girls growing up with increasing activities thrust upon them; with rapidly growing bodies which need proper exercise. But what should we expect exercise to do for them? Hough of the Massachusetts Institute of Technology, has laid down the following as the effects of exercise:

"1. Muscular activity affects *nerve mechanism,* clear back to the central system.

"2. Muscular *nutrition* is influenced.

"3. *Waste* in the muscles is made good.

"4. Waste products are discharged upon the blood and carried to other organs.

"5. It is believed that some of the products of muscular exercise actually stimulate other organs; *e. g.*, the respiratory and the heart centres in the medulla.

"6. Muscular exercise involves the liberation of much heat, bringing into play the heat-regulating apparatus of the skin, and giving by their better tone greater immunity from taking cold."

Hough gives nine more direct physiological effects upon the circulatory, respiratory and digestive systems, all of which are stimulated by exercise, and require muscular activity for their proper functioning. He ends his list with the remark: "Thus, it is seen that muscular exercise has a profound influence upon every organism. Indeed, no other physiological activity is comparable to muscular exercise in its general effects. Mental exercise does accomplish much for the organism; digestion affects more than does mental exercise but much less is involved than in muscular exercise." That is the statement of the laboratory experimenter, studying the functions of the body, part by part. Let us turn to the practical physical educationists. These men and women in the colleges and preparatory schools throughout the country, have given valuable data in the line of bodily measurements of those under their charge. Beyer of the United States navy and in charge of the physical education of the cadets at Annapolis says of the immediate effects of exercise, "We sleep better and think clearer, we react, discriminate and associate ideas quicker; we see, hear and taste more distinctly; the functions of the skin and kidneys are increased; digestion and assimilation are greatly improved; the expansion of our lungs is greater, and the contractions of the heart are stronger, blood pressure being increased; and, finally, all the muscles, both voluntary and involuntary, contract more quickly and with greater effectiveness." Interesting as is this statement, we find that the doctor is able to prove conclusively that since physical training has been systematically undertaken at the Naval Academy, the average of the 188 students so trained, shows marked increase, age for age, in height, weight, lung capacity and total strength over the 4537 cadets preceding them. He points out that the successive yearly measurements of the 4537 students showed progressive increase in each of the measurements named, and this he considered the natural increase unaffected by special exercise. It was only when his 188 students, taken from like conditions of home and previous training, and arrayed in tables corresponding to those of the 4,537 students, age for age, showed the increase referred to all along the line, that he could depend upon the figures as indicating growth due to exercise.

When we come to the testimony of physicians and of instructors of gymnastics, our resources are great. Dr. Mary Taylor Bissell of New York, who writes particularly concerning exercise for young women and girls, has collected interesting statements from the directors of gymnastics of many of the leading women's colleges and preparatory schools of the country. Some of these I will quote. From Smith College comes the statement: "We graduate students in better health than when they entered college." The physical director at Wellesley writes: "I cannot say too much in praise of this work for girls. We are getting the most gratifying results." The gymnasium instructor at Rockford Seminary, Illinois, says: "It is conceded by the Principal that since we have done systematic gymnastic training, the pupils show better brain work, they are absent from the recitations less and the girls are in better, healthier condition all the time." In regard to pelvic derangements, Dr. Bissell writes: "Instead of increasing a tendency to pelvic disorders in girls, physical training is proving a source of improvement and vital relief."

It is scarcely within the province of this paper to state more particularly what the physicians,—the general practitioners and the specialists,—say about the pitiable lack of muscular and nerve development in the women who come to consult them. That which Skene has called and carefully described, "the invalid habit" in women, is the outcome of our social rules which decree that at fourteen or fifteen, our girls shall have done all the general body training that is considered necessary and that from that time on, when their peculiar organs are trying to develop themselves normally, they shall be confined to the house and to inaction, where poorly digested food and vigorously applied intellectual stimulants, constitute all the nourishment they receive. This is the "supply in excess of the demand," which during adolescence is supposed to build up the fine, strong constitutions able to undertake the responsibilities of maturity. Is it a wonder that we hear such testimony as this from a specialist, that two-thirds of the patients who come to consult him, need not have been in his office had they given proper training to their bodies in their youth? We do not need higher authority than Dr. Skene, who says: "My observations show that the vast majority of incurable diseases peculiar to women, originate in imperfect development and consequent derangement of function." In the same article he says, "The great object is to develop the whole body evenly and consistently, with a view to adaptation to the requirements of mature life." And again, "All those conditions which secure the highest type of physical womanhood are most favorable to the development of the peculiarities of sex and the best system of hygiene and culture of the present day." Elsewhere he states, "There is no one agent so potent in relieving chronic congestion of the internal organs, as muscular exercise."

This question of the "invalid habit" suggests one of the strongest reasons for accustoming adolescents to bodily movements. "You cannot teach an old dog new tricks," is rather a trite saying, but those who lead classes for adults, especially women's classes, will agree with me that its application is an every-day occurrence.

Why do the members of women's gymnasium classes dread the idea of exercise? Why, when they do enter the class, is there so much difficulty in performing what to the trained teacher is the simplest movement? As girls and young women, such activity and such "unseemly" postures were not considered recherché. And so there were eight or ten years, the very period when there should be a seteady development of that portion of the brain and central nervous system which governs such functions, when the musculo-nervous mechanism was inactive and dormant.

Hartwell has ably shown the intimate connection and interrelation between muscle and nerve development. He points out that disuse of a part of the body causes atrophy or arrested development in its nerve tract, clear to the cerebral centers. Of the *raison. d'être* of the early exercise of muscular activity, he says, "the memory of past actions and the stimuli which evoked them become embedded or organized in the centers of the motor areas." James says: "For the most of us by the age of thirty, the character has set like plaster, and will never soften again." He goes on to say, "If the period between twenty and thirty is the critical one in the formation of intellectual and professional habits, the period below twenty is more important still for the fixing of personal habits, properly so-called, such as vocalization and pronunciation, gesture, motion and address," and, I would add, general exercise. Get the boys and girls accustomed to muscular activity; ingrain in their nervous systems the idea of exercise; educate their "muscular senses," and the thought of exercise will be as familiar to the men and women of the next decade as is the habit of eating three times a day.

Such are the boys and girls as we find them. Are not the indications for their exercise plain? They are growing into lives which keep them indoors more and more. We should get them out of doors. Welcome to the bicycle and to golf! The clear, red-cheeked faces and bright eyes of the girls we see on the street or in the parlor during Obtober, tell the tale of many a country ramble awheel, and full-chested swing of the "driver" on the links. The wheel should be encouraged until damp and snowy weather make it actually impossible to ride. Swimming in summer and skating in winter, rowing and tennis are excellent. Basket-ball, whether indoors or out, as at Smith, Radcliffe, Wellesley, Vassar and Bryn Mawr, is beneficial, after a certain amount of general training has been accomplished. But this is not enough. The habits of carrying heavy books on the left arm, of improper postures at the desk, the easy chair and in bed, are developing serious spinal curvatures, round shoulders and cramped chests, with their consequent long line of pulmonary disorders. The lounging, bent-back position during the long hours of reading in easy-chairs, and as Dickinson has so forcibly pointed out, the use of corsets by girls, are responsible for weak abdominal and pelvic-floor muscles and for faulty positions of the pelvic organs.

So we must insure to the boys and girls systematic body-building in gymnasiums. In this, particular stress should be laid upon symmetrical growth of both sides of the trunk, the easy full expansion of the chest in all its possible directions, an erect position of the head, square shoulders, including thorough training of the muscles attached to the shoulder-blades, and care for the growth of the muscles of the lower part of the back and of the abdomen. In the work upon the trunk, the arms and legs will get sufficient general training; and if anything more were needed, the out-of-door sports before referred to would answer every purpose. But body building is what is most neglected in the artificial conditions of city life. The young girls and boys whom the doctors sees professionally with spinal curvatures, prove this most conclusively. They straighten up, their shoulders come back and heads are borne better as soon as they have had a little systematic, persistent building-up of their back and shoulder muscles.

The methods of giving body-exercise, whether free-floor work or with apparatus, we will not discuss here. The principles involved are the same and are familiar to the trained teacher.

The time given to the exercises requires some attention. The pure trunk-developing work will never be as interesting as the open-air athletics, and will, therefore, not have the voluntary support given to games, although many a successful teacher makes it so attractive as to be enjoyed by the pupils. This strictly educative branch should therefore take a prominent place in the school or college curriculum. I firmly expect to see the day when in our primary, intermediate and grammer grades, physical training will hold its place side by side with arithmetic, algebra, grammar and geography, as a daily forty-minute or one hour session. And not with the idea of being an immediate relaxation from the restraints of the other studies;—that should be planned for in about three minutes given at the end of each period by means of something akin to a good stretch and a few deep inspirations, with the windows open. No, this should be undertaken for purely educative purposes. Nor is it to be accomplished by adding another period of forty or sixty minutes to the six hours already taken during the day, but a given six years' work should occupy seven if necessary; and I surely believe that the mental results obtained at the end of such a six years' plan successfully prosecuted, would be far in excess of any six spent without this exercise.

The out-of-door sports should occupy the time after school. Two hours are little enough to be in the open air. For the greater part of the year, there will be day-light until five o'clock, allowing ten miles on the bicycle, a six or seven inning game of base-ball, or two sets at tennis. For the winter, arrangements should be made, if possible, for basket-ball or other games in the gymnasium. Of course this presupposes that each school has a gymnasium, or that some arrangement has been made, as has been suggested, to have the use of the great city armory floors. At present the artificial ice rinks of New York and Brooklyn meet this need for winter recreation for those who can afford to pay for it. The remaining time until dinner, should be given to study, which should not occupy more than one hour out of school up to at least fifteen or sixteen years of age. After dinner, light reading or family amusements until nine, when the sleep-craving animal should retire for the night.

These conditions would involve some radical changes in both our school systems and our home life. But how real and lasting would be the benefits, and adolescence, instead of being a time for sowing the seeds of invalidism and disease, would prove a healthful, happy period of progressive development into staunch and useful manhood and womanhood.

PARTIAL BIBLIOGRAPHY.

1. Beyer, Henry G.: Influence of Exercise on Growth. Journal of Exper. Med., Vol. 1, No. 3, Appleton, N. Y., 1896, and Am. Phys. Ed. Rev., Vol. 1, No. 1 and 2, Boston, 1896.
2. Bissell, Mary Taylor: Physical Training in Women's Colleges. Proceedings Am. Assn. Adv. Phys. Ed., Vol. IV, p. 8, 1888.
3. *Ibid.:* Athletic for City Girls, Pop. Science Monthly, Dec., 1894.
4. Boulton: Growing pains. Brit. Med. Jour., London, 1880, I.
5. Bowditch, H. P.: The Growth of Children, Eighth Annual Rep. State Board of Health, Mass., and Public Am. Statis. Assn., Boston, 1894.
6. Byford: The Second Decade of Life, Cincinnati Lancet and Obs., 1877, H. S. XX.
7. Clanston, T. S.: Puberty and Adolescence, Medico-psychologically Considered, Edinb. Med. Jour., 1880-1881, XXVI, 5-17.
8. Dickinson, R. L.: The Corset; Question of Pressure and Displacement, N. Y. Med. Jour., Nov. 5, 1887.
9. Enebuske, C. J.: An Anthropometrical Study of the Effects of Gymnastic Training on American Women, Publ. Am. Stat. Assn., Boston, 1894.

10. Flint, Jr., Austin: Text-book of Physiology, p. 945, D. A. & Co., New York, 1877.
11. Hartwell, Edw. M.: General Exercise. Hare's System. Practical Therapeutics, Vol. I, Lea Bros., Philadelphia, 1891.
12. Hough, Theodore: Lectures to Boston Normal School of Gymnastics.
13. James, William: Habit, Text Book of Psychology, H. Holt & Co., New York, 1893.
14. Lee, F. S.: Am. Text-Book of Human Physiology, p. 923; Saunders, Philadelphia, 1896.
15. Madden, T. M.: Puberty, Disorders of. Quain's Dict. of Med., Vol. II, 550. D. A. & Co., New York, 1894.
16. Skene, A. J. C.: Secondary Differentiation of Sex at Puberty, Medical Gynecology. D. A. & Co., New York, 1895.

HISTORY OF PHYSICAL EDUCATION IN THE PUBLIC SCHOOLS OF NEW YORK CITY.*

A. L. BARRETT.

THAT exercise of the body has long been considered an important adjunct to intellectual training, will be evident to any one perusing literature upon the means and methods of education of the young. Each year it is coming more and more into prominence, and it is today justly regarded by many as second to none of the subjects of a well regulated curriculum, from the kindergarten to the college. Hence we feel that no apology is necessary in this day, and especially to the members of this society, for a paper bearing upon Physical Education in the Public Schools of New York.

Apparently the introduction of gymnastics is coeval with the establishment of public instruction in this city, as we have been unable to find, in any of the records, when it was first introduced, and there was no time, "within the recollection of the oldest inhabitant" whom we have consulted, when some form of physical exercise was not a part of the regular daily duties.

In the earlier years the exercises were of the simplest kinds, each principal or each teacher arranging a set for his own scholars, with no idea or special attempt at uniformity among the schools. They consisted principally of free-hand drills, games and marching.

Assistant-Superintendent Seton, in his annual report for 1866, refers to an incident of years gone-by as follows: "The teachers' attention was directed to the extreme importance of the subject, while I personally urged them to use songs of motion. I had prepared motions of washing, sewing, bread-making, farming, plowing, digging, raking, mowing, blacksmithing, bell-ringing and wood-chopping, so that there was almost every conceivable variety of motion."

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* Read before the Physical Education Society of New York and vicinity, October 15, 1897.

In 1853, apparatus (wooden-rings, dumb-bells, wands and Indian-clubs) was introduced into Grammar Schools Nos. 14 and 33, and several others in the 20th and 21st Wards, and the improvement and benefit among the pupils was very apparent. During the same year special teachers were appointed to instruct in the wards, teaching all the classes, "but," (to quote again from the above mentioned report) "notwithstanding all this, general physical exercise is still neglected in the schools."

In 1875 a proposition was received from, and a plan submitted by Mr. H. C. Jarrett regarding the promotion of physical culture in the Grammar Schools, but was declined as not being feasible.

On April 15th, 1885, a similar communication was received from the Turner Bund—New York Delegation—as a result of which, the following resolution was adopted by the Board of Education, in May, 1886:

"On the application of any Board of Trustees to the Committee on Course of Study, to introduce the subject of Physical Exercise in any school, and the approval of such application by the City Superintendent, said committee may furnish, to any school, the apparatus for this branch of instruction, at a cost not to exceed $194.00 for each school; and the trustees may employ an instructor to take charge of this special branch, etc."

While there were few, if any, immediate and visible results of this action of the Board of Education, yet to the earnest and persevering efforts of the Turners along this line is largely due the present status of Physical Education in the public schools of New York City, and any history of the subject would be incomplete, which did not accord to them due credit.

The first attempt at anything like a uniform system of physical education in any number of schools was made in 1891, when Dr. J. Gardner Smith was appointed Instructor in Physical Culture, by the Board of Education. He prepared and introduced a series of graded exercises suitable for the different classes from the lowest Primary to the highest Grammar grades. It was founded upon the Swedish and German systems, the objects in view being, primarily, as expressed in the Course of Study, "to expand the lungs, develop the muscles, and impart an easy and graceful carriage to the body." Second, To have exercises which would come within the mental grasp and physical ability of a child just entering the lowest primary grade, and others equally well adapted to his needs and qualifications as he advanced from grade to grade. Third, By variety in the exercises of the different grades, and even in the same grade, to introduce the important element of anticipation and pleasure.

At the same time a modification of the "Setting-up Drill" of the U. S. Army was taught and practiced in all grades, Primary and Grammar alike. All scholars likewise were taught and practiced breathing exercises for the upper, lower and side chest, facing and marching.

In addition to the above, the 6th Primary had simple free-hand exercises for the development of the fingers, hands, fore-arms, and arms, as also those for the neck, trunk and lower extremities.

The 5th had wood rings.
The 4th, wood dumb-bells.
The 3rd, wands.
The 2nd, dumb-bells (anvil chorus).
The 1st, Indian clubs.

GRAMMAR.

The 8th, calisthenic dumb-bell, drill.
The 7th, wood dumb-bells.
The 6th, wands.
The 5th, dumb-bells.
The 4th, bell-bars or wands.
The 3rd, dumb-bells.
The 2nd, bell-bars or wands.
The 1st, Indian clubs.

In schools provided with heavy apparatus, the boys in the 1st grade Grammar had also work on the horse, buck, high and low parallel bars, horizontal bar, and ladder.

The first school into which this system was introduced, was Primary No. 6, in September, 1891. At this time it met in the building of the German Turn Verein, in Third street, between Second and Third avenues, and used their gymnasium. In September, 1894, this school was merged into Grammar School No. 25, Primary Department, and its system of Physical Education transferred to the latter.

In September, 1891, Grammar School No. 75, in Norfolk street, near Grand, was equipped with apparatus (heavy and light) and both departments entered upon a course of special instruction in Physical Culture, the assembly-room, class-room or play-ground being the scene of action, according to circumstances.

Grammar School No. 22, Sheriff street, near Houston, followed, in October, 1891. Here, a part of the assembly-room on the third floor was given up for the purpose. In December, 1893, however, owing to the numerous applications for admission, the Trustees decided, much to the regret of teachers and scholars alike, that they would not be justified in continuing to use as a gymnasium, the space which was sorely needed for class-rooms. Consequently, owing to the non-adaptability of the play-ground for the purpose, the apparatus and instructor were transferred to Grammar School No. 23, corner of Mulberry and Bayard streets. Not so, however, with the exercises, for while they were introduced into No. 23, they remained also at No. 22, as many of them at least as were adapted to class and assembly-rooms, and continued until the introduction of the present system, in the fall of 1896. No. 23 had a large, light and well-ventilated gymnasium on the top floor, for the Grammar Department, and an almost equally good place for the Primary pupils in the play-ground on the first floor.

In March, 1893, the writer was appointed by the Board of Education and took charge of the above mentioned schools, while Dr. Smith did service in the schools in the upper part of the city.

Primary School No. 23, 125th street, near Eighth avenue, was added in January, 1892. This school later became the Primary Department of Grammar School No. 10, at 117th street and St. Nicholas avenue, where the physical exercise was continued until the fall of 1896.

In November, 1891, the work was introduced into both departments of Grammar School No. 61, Third avenue, near 169th street, the play-ground and former class-rooms being used, for want of a gymnasium.

In March, 1892, the Primary Departments of Grammar Schools No. 85, East 138th street, and No. 86, Lexington avenue and 96th street were added to the number, and in June of that year, the Grammar and Primary Departments of No. 90, Eagle avenue and 163d street, where a special building was erected for a gymnasium.

These schools were visited by representative teachers, and in this way about thirty thousand scholars were reached with the graded work, and a large majority of the schools, with the assembly room drill. In most of these schools the U. S. Army setting up drill, together with some of the free-hand work, was practiced in assembly with the piano, several times a week. The plan was for the instructor to spend an hour and a half a week in each Department, inspecting the work of the previous week, (led by the teacher or a scholar appointed by her), and giving a new lesson of one or more exercises.

Owing to the pressure of professional and other work, Dr. Smith was obliged to resign in June, 1896.

Last October the present system of Swedish movements without apparatus was inaugurated by Dr. M. Augusta Requa and Miss Sophie J. Nicolai, as Supervisors of Physical Culture.

At first the Supervisors lectured once a week in certain school buildings in different parts of the city. One to three teachers from every school in the city were delegated to attend these lectures where they were instructed by the Supervisor in certain exercises for the following week. They were expected to teach the teachers in their respective schools and they in turn to drill the scholars.

About the first of the present year, the Supervisors prepared and issued the lessons in pamphlet form, each teacher being provided with one.

This system has been carried on during the year, and there is now a condition which has never before existed and is a great step in the right direction, viz., a uniform system of Physical Education in all the Public Schools in the city.

REPORT OF THE SPECIAL COMMITTEE ON PHYSICAL TRAINING.

To the School Committee of the Town of Brookline:

The standpoint of your committee may be characterized as follows:

We are of the opinion that physical training should constitute an indispensable part of school training for both sexes. Its need and value have been recognized for many years in those parts of the world where most attention has been given to the improvement of public education. Physical training is generously and intelligently provided for in the public school system of most German states; of Sweden, Norway, France, Switzerland, and also of Great Britain. It is scarcely too much to say that in the countries mentioned particular attention is given to providing instruction and facilities for physical training in their largest and most crowded cities as well as in their former towns. In Europe, as a rule, it is placed under the direction of teachers especially qualified and trained for their work. Such teachers receive their training in government normal schools of gymnastics, and in those cases where a portion of the gymnastic training is delegated to the ordinary class teachers, the latter receive instruction in the subject in the course of their professional training.

Within the last fifteen years there has been a growing tendency in the larger cities of this country to develop physical training as a more or less special department of the school curriculum. Such departments have been maintained in Kansas City and in Chicago continuously since 1885. Boston, New York, Brooklyn, Washington, St. Louis and Cleveland, not to mention smaller cities both in New England and the West, have organized more or less completely their departments of physical training under the control of a single responsible person who devotes practically all of his or her time to the work. There is an increasing tendency to emphasize its educational value and to organize it as a department of pedagogical discipline, rather than as a department of hygiene. Although public education has been greatly varied and enriched in recent years through the addition of new subjects, such as nature study, manual training and music, and through the improvement of the instruction in the more conventional branches of education, physical training has scarcely received due recognition from educational authorities in the United States. But as the crowding of population goes on, and the problems resulting from such crowding and from the increasing pressure of the intellectual training provided for and demanded of school children and youth increase, the attention of the medical profession, particularly that portion of it devoted to the study and treatment of the diseases of the brain and nervous system, is becoming more and more directed to considering means for improving and maintain the health and physical well-being of the school population. The opinion is gaining ground amongst the students and critics of public education as organized and administered for town and city children, that greater attention should be paid to the physical training of such children, on the one hand to the end that a counterweight may be introduced to over-specialization on the purely intellectual side of training, and on the other hand, that for the sake of complete education of the child, his physical powers, on which his mental health indisputably depends, may be harmoniously and fully provided for. The teachings of modern medical science are clearly to the effect that the brain cannot be developed to its full strength and capacity unless the muscles of the body, which are not only intimately but inseparably connected with it, attain their proper growth and development. When we consider that it is only by means of bodily movements that the constitution and action of the brain can be determined, it is evident that the training of the muscles constitutes, in an important sense, training of the brain. The recent developments in physiology and psychology serve to bring into clear relief the truth, that a much larger portion of what is ordinarily called mental training consists essentially in the acquisition and practice of selected, skilled muscular movements. This is the more evident if we consider closely the amount of time which is taken in teaching children to control the mechanisms whereby thought is expressed, through written and spoken forms of language. The principles of physical training apply not only to the acquisition of proper habits in the control of the pen, the pencil and the organ of speech, but also to the development of the organ of manipulation, namely the hand. It may be said that the introduction of manual training has intensified the need of generalized forms of gymnastics as a corrective to objectionable postures and forms of movement that are liable to be induced by careless and uncritical instruction in the use of tools. It is on such grounds as these that we base our opinion that the need of physical training in the schools of Massachusetts was never greater than at present, and it seems to us indisputable that the schools, particularly in the cities and large towns of our state, will never be fully abreast with the best organized schools in other parts of the world until it is freely and generally recognized that the child should be provided with guidance and instruction in the two main departments of physical training, viz., games and gymnastics. It would not be difficult to show that the teachings of science and the best experience agree that physical training for school children can be so ordered as to meet the physical and mental needs peculiar to the developmental stage of childhood, opening adolescence and established adolescence.

We believe that guidance in games and instruction in gymnastics should be so ordered that increasing demands should be made upon the strength, intelligence and self-control of the pupils as they pass from the lower to the higher grades of the school system. In other words, we believe that experience has shown that it is not only desirable but feasible that physical training in the High School should present a distinct advance in complexity, difficulty and variety over that which is proper in the lower grammar and primary grades. But physical training, adequate to the needs and powers of boys and girls in the higher grammar classes and in the high schools, cannot be provided without properly assorted apparatus in places set apart for their use. Class exercises in the class room or the school corridors, such as have been introduced into the Brookline schools, are vastly better than nothing, but they fall far short of constituting an adequate and complete system of training, such as may be found in most of the European cities of even the second and third class.

Your committee has visited several of the typical schools of the town and observed the character of the exercises practised in some twenty different classes, representing the primary, grammar and high school grades, and noted the methods of instruction and practice, both in games and plays and in the more formal gymnastics.

It is our opinion from what we have seen that a creditable and hopeful beginning has been made toward introducing physical training of an elementary nature. The proficiency shown by the teachers in the several classes which we visited varies considerably. In several cases the instruction was notably above the general average observable in the classes taken as a whole.

In considering physical training as a whole, as it exists at present in the schools of Brookline, it seems to us that the most outstanding fact is a lack of thorough, steady, centralized direction. It is evident from the excellent character of the teaching given in certain schools and certain classes that we might name, that the average proficiency throughout the schools could readily be much improved. At present it seems to us that the class teachers stand in need of more thorough instruction in the work that they have undertaken in order that the character of the physical training may be expanded and coördinated to meet the wants of the children. The gymnasium in the High School appears to have been provided as an afterthought. It is not well adapted to the purposes of instruction, nor is it equipped so fully as it might be, even under present conditions.

The course of physical training at present in vogue in the schools may be characterized as somewhat disjointed and incomplete. This particularly is the case as regards the instruction provided for the boys in the High School. Your committee desire to commend the excellent results of the physical training which has been given the girls of the High School by the instructor. She has labored faithfully and intelligently with them, and in consequence they show improvement in physique, and a clearer comprehension of the laws of health. Such work as this shows how much can be done, and under a well devised system undoubtedly would be done for both girls and boys in all of the schools. It is scarcely to be wondered at, in view of the disproportionate attention given in colleges to athletic contests, that the men engaged in teaching in most high schools are not sufficiently well grounded, even when they are interested in gymnastics, to teach the same successfully to their classes. At present it is much easier to find competent women than men teachers of gymnastics, but the fact remains that physical training in high schools is capable of being made much more thorough-going, interesting, genuine and useful than is at present the case. It is a rather singular fact that, taking the high schools of the country as a whole, physical training has been largely neglected. A few notable examples of well organized departments of physical training in city high schools might be cited, but they are exceptional. We hold that what is needed for the better development of physical training in high schools is to provide male instructors who can lead and advise the boys in their games and instruct them in their gymnastics. We freely admit the difficulty, under the present conditions, of finding such instructors for boys' high school classes, but we believe that the sooner the demand for teachers of the kind described is recognized the sooner will a supply be found.

We note with pleasure the success which has attended the instruction provided in swimming in connection with the town bath-house, and we are of the opinion that the opportunities afforded the boys of the High School for exercise in swimming more than compensate for the abolition of military drill. Military drill, as a form of physical training, is much more narrow and technical than either gymnastics or swimming, and we would warmly recommend the policy of providing opportunities for boys and girls of the town for instruction and practice in this interesting and useful form of exercise. At the same time swimming can hardly be considered a sufficient substitute for well-ordered, progressive instruction in the use of gymnastic apparatus.

Our study of the existing situation leads us to conclude that the experiment of introducing guidance and helpful instruction in play and games during the present year has been attended with a considerable measure of success. We think that this line of policy will bear further development.

We have no hesitation in recommending that more, rather than less, thought and attention should be given to developing an adequate system of physical training throughout the schools, and we consider it indispensable to the successful development of such a system that physical training should be recognized and provided for as a distinct department under a single supervisor or director.

In order that a well arranged plan for progressive physical training in the Brookline schools may eventually be made to reach its highest point of efficiency, your committee wish to reiterate the opinion already expressed, that proper apparatus is necessary for the pupils of the High School and the higher grammar school grades. Where possible this should be gradually introduced into the existing schools, and provision made for it in buildings to be erected. The cost of apparatus is very moderate. It is not a necessity to provide elaborately equipped gymnasiums which require considerable space and materially enhance the first cost of the plant. The desired object can be satisfactorially accomplished by placing adjustable apparatus in the large assembly halls with which it is customary to provide all school buildings. This plan has been adopted in some of the Boston schools, and has been a means of solving the problem of where apparatus should be placed.

WALTER CHANNING, M. D.
EDWARD M. HARTWELL, M.D.

PLAYGROUNDS IN BOSTON.*

The following statement furnished by the Park Department shows the number of acres and the cost of the playgrounds belonging to the city—that are under the charge of the Park Department:

Charlesbank—Charles street, between Cambridge and Leverett streets, taken in 1883 under the Park Act; ten acres (three acres in gymnasium and playground). Cost: land, $373,916.99; construction, $305,513.13.

Charlestown Heights—Corner Bunker Hill and St. Martin streets, taken in 1891 under the Park Act; four acres land, six acres flats (one acre in playground). Cost: land, $50,538.02; construction, $95,966.76.

Charlestown Playground—Corner Main and Alford streets, taken in 1891 under the Park Act; fourteen acres enclosed by a sea wall (four acres flats, nine acres filled). Cost: land, $172,923.31; paid on account of construction, $9,263.17.

Mystic Playground—Chelsea street and Mystic river, Charlestown, taken June 23, 1897, under the Playground Act; two and one-fourth acres. Cost: land, $50,000.

North End Playground—Prince and North Bennett streets, taken May 25, 1897, under the Playground Act; one-fourth of an acre. Cost: paid on account of land, $99,228.95.

North End Beach and Copp's Hill Terraces—Commercial street, taken in 1893 under the Park Act; four acres land, three acres flats (about one and one-half acres in playground). Cost: land, $419,222.63; construction, $185,587.45.

Wood Island Park—East Boston, taken in 1882 and 1891 under the Park Act; forty-six acres land, 165 acres flats (nine acres in gymnasium and playground). Cost: land, $132,800; paid on account of construction, $216,530.27.

North Brighton Playground—Western avenue, purchased in 1894; fourteen acres marsh (three acres filled). Cost: land, $21,861.73; paid on account of construction, $3,095.68.

Fellows-street Playground—Corner Fellows and Hunneman

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*Reprinted from the Boston *City Record*, Vol. I, No 23.

streets, taken August 17, 1897, under the Playground Act; three-fourths of an acre. Cost: land, $14,503.72; paid on account of construction, $496.28.

Billings Field—Between Bellevue and Lagrange streets, West Roxbury, taken December 14, 1896, under the Playground Act; eleven acres. Cost: land not paid for; paid on account of construction, $18.50.

Franklin Field—Blue Hill avenue, Dorchester, taken in 1892 under the Park Act; seventy-seven acres (forty acres in playground). Cost: land, $157,341.22; paid on account of construction, $70,813.53.

City Point Playground—First street, South Boston, transferred from Public Grounds Department March 2, 1897; five acres. Cost: construction, $9,554.35.

Neponset Playground—Neponset avenue, Dorchester, taken December 14, 1896, under the Playground Act; nineteen acres salt marsh unfilled. Cost: paid on account of land, $1,698.50; construction, $963.32.

Christopher Gibson Playground—Dorchester avenue, Park street and Geneva avenue, Dorchester, taken November 1, 1897, under the Playground Act; six acres. Cost: land, $37,500.

In addition to the above, there are playgrounds, tennis courts and golf links in Franklin Park, aggregating about 125 acres.

The salient facts contained in the above statement may be tabulated as follows:

NAME.	Taken in Year.	Total Acres.	Acres in Playground.	Cost of Land.	Cost of Construction.	Total Cost.
Charlesbank	1883	10	3	$373,917	$305,513	$679,430
Charlestown Heights	1891	10	1	50,538	95,967	146,505
Charlestown Playground	1891	14	9	172,923	9,263	182,186
Mystic Playground	1897	2.25	2.25	50,000	....	50,000
North End Playground	1897	.25	.25	99,229	....	99,229
North End Beach and Copp's Hill Terraces	1887	7	1.50	419,223	185,587	604,810
Wood Island Park	1892, '91	211	9	132,800	216,530	349,330
North Brighton Playground	1894	14	3	21,862	3,096	24,958
Fellows-street Playground	1897	.75	.75	14,504	496	15,000
Billings Field	1895	11	11	Not paid for	19	19
Franklin Field	1892	77	40	157,341	70,814	228,155
City Point Playground	1897	5	5	Transferred	9,554	9,554
Neponset Playground	1896	19	Unfilled.	1,699	963	2,662
Christopher Gibson Playground	1897	6	6	37,500	....	37,500
Totals		387.25	91.75	$1,531,536	$897,802	$2,429,338

In Franklin Park about 125 acres are devoted to playground purposes.

REPORTS FROM SOCIETIES.

BOSTON PHYSICAL EDUCATION SOCIETY.

Twenty-second Meeting, April 14.—Society met at the Fogg Art Museum, Harvard University, Cambridge. Dr. John Bapst Blake read a paper on "Cross-Country Walking." The speaker recommended walking as the best all-round exercise for both sexes and all ages. Many practical suggestions were given as to dress and methods. Dr. Sargent read a paper on "Bicycling as an Exercise," which was profusely and ingeniously illustrated by apparatus and charts. The paper considered bicycling with reference to the greatest economy of force for the longest periods of time, accepting this result as at the same time the best test of the hygienic value of posture and method in bicycling. Dr. Hartwell, as president of the national council, made announcement of the convention to be held at Boston in June, outlining the programme. He spoke also of the progress in establishing playgrounds in Boston, and moved that a committee of five on public playgrounds be appointed by the executive committee of the society, such committee to represent the society in coöperating with the authorities in this interest. The motion carried.

Twenty-third Meeting, May 12.—This meeting was called for special business. The following were elected members: Miss B. L. Barnes, Bridgewater State Normal School; Miss Agnes Danforth, Thayer Academy, Braintree; Miss E. B. Sherrard, Wellesley College; Miss L. R. Rous, Assistant Miss Colby's School; Mr. Daniel D. Kearns, Secretary Department of Baths; Mr. A. K. Peck, Pope Manufacturing Co.; Dr. G. H. Earl, 18 Huntington Avenue; Dr. Helen T. Childs, Jamaica Plain; Mrs. Alice H. Porter, Brookline; Mrs. M. E. Jones, Allston; Miss H. F. Mayo, 11 Newbury Street; Mr. David R. Craig, 84 Mt. Vernon Street. The society discussed the proposal to postpone the national convention to 1899, and voted that the society favor the holding of the convention at the time already agreed upon. President Blake appointed the executive committee a committee of arrangements for the convention.

A communication was read from the Emergency and Hygiene Association asking for the coöperation of the society with the association in matters of interest to both. It was decided that the president act with the persons appointed by the E. and H. Association.

Arrangements were made with Mr. Charles W. Hubbard to have several exhibitions take place at the Riverside Recreation Grounds under the auspices of the Society, one of these to be at the time of the meeting in Boston of the American Association for the Advancement of Science. Professor H. W. Tyler of the Massachusetts Institute of Technology spoke in behalf of the latter association.

JOHN M. PIERCE, Secretary.

The following is a programme of the June events at the Riverside Recreation Grounds held under the auspices of the Boston Physical Education Society: Saturday, June 11, 3.15 P. M.—Water Sports. 1st.—Diving competitions and canoe tug-of-war. 2nd.—Swimming competition. 3d.—Exhibition diving. 4th.—Under-water swim for distance. 5th.—Fancy swimming and water-polo.

Friday, June 17.—Exhibition by German Athletic and Singing Clubs. Gymnastics, 3.15 P. M. Singing, 8 P. M.

JOHN M. PIERCE, Secretary.

DR. CLARENCE J. BLAKE, President.

NEW YORK PHYSICAL EDUCATION SOCIETY.

A meeting of the Physical Education Society of New York and vicinity was held on Wednesday evening, March 16, at 8 o'clock, at Dr. Savage's Physical Development Institute, 308 W. 59th street, Borough Manhattan. Subject: Report of the First Standing Committee (on Theory and Statistics). Special subject for consideration as recommended by the committee: Physical Education as taught in some of the Normal Schools of this country. Committee: Walter Truslow, M.D., chairman, Mr. Seibert, Miss Beiderhase.

J. BLAKE HILLYER, Secretary.

The regular monthly meeting of the Physical Education Society of New York and vicinity was held at New York University on the evening of April 15. In the absence of the president, Dr. Thuslow presided.

Dr. Requa, in the name of the committee appointed to consider the questions sent out by the National Council, asked for further time in which to consider its report. Miss Bancroft, for the same committee, asked that two more members be appointed, one representing Brooklyn, the other Manhattan, and that neither one be connected with the public schools. Both these motions were carried. The topic for the evening, "The Standing Posture," was introduced in an able and interesting paper by Mr. Jakob Bolin, who treated the subject from anatomical, physiological and educational standpoints and covered the ground in a very thorough and detailed manner. Dr. Henry Ling Taylor then took up the subject with special reference to the position of the feet in standing and walking. He strongly advocated the straight position (cl. st. pos.) particularly where there was any tendency to weak feet, although he appreciated the advantages of the 90° or 60° positions as bases for gymnastics. Dr. Taylor also advised shoes which should favor the adduction of the feet, as an assistance in walking directly forward.

Dr. Matilda K. Wallin spoke for a few moments, on posture from the gynecologist's standpoint and fully endorsed what Mr. Bolin had said.

After a short discussion the meeting adjourned.

MARTHA GARSIDE,
Reporting Secretary.

The regular monthly meeting of the Physical Education Society of New York and vicinity was held at the Y. M. C. A., Borough of Manhattan, on May 17.

Business connected with the meeting of the National Council in June occupied the greater part of the evening. Papers on the special subject, "The Training of Leaders," were presented by Dr. J. Gardner Smith, Miss Delia M. Elliot and Mr. Metzner. Dr. Smith discussed the training of leaders in the Y. M. C. A. gymnasiums; Mr. Mentzner, the methods used in the Turnverein, and Miss Elliot dwelt upon the proper use of the voice and the influence exerted by a teacher or leader through a well regulated and effectively controlled voice.

This was the last meeting of the society for the season.

MARTHA GARSIDE,
Reporting Secretary.

PHILADELPHIA PHYSICAL EDUCATION SOCIETY.

(Pennsylvania District Association, A. A. A. P. E.)

The first of the regular monthly meetings of the above society was held on Saturday, April 16, at Drexel Institute. Lightner Witmer, Ph.D., of the University of Pennsylvania gave a paper upon "The Mental Factor in Physical Training." The results of thousands of experiments performed in the psychological laboratory show that there is a much more intimate and close connection between the mental and physical than might at first be assumed. He stated that in testing kindergarten children with the spirometer he had found that the brighter children were those who could best concentrate their attention upon the work in hand; they made better records and improved far more rapidly. Physical training teaches just this concentration of attention. Dr. Witmer closed by saying that he was very confident that the college boy who could run down the field track all steam on, would, other things being equal, be best able to put all steam on when it came to a question of intellectual work.

Mr. Jakob Bolin of New York read a paped on "The Fundamental Standing Position." The discussion which followed brought out many interesting little devices used by the various teachers in gaining a good standing position. Mr. Bolin illustrated his method of procedure with his pupils.

The second of the regular monthly meetings was held Saturday afternoon, May 21, at Drexel Institute. Dr. A. P. Brubaker, Jefferson Medical College, read a paper entitled, "The Effects of Muscular Exercise on the Central Nervous System." Muscles have the power of contracting when a stimulus is applied. This stimulus always comes from the central nervous system. Movement is due to the discharge and passage outward of impulses from nerve cells; so that if muscles are voluntarily contracted these cells are compelled to work. The oftener they are stimulated, the greater will be their inherent capacity for discharge. As these cells are brain cells, the volitional power of the individual is increased; we cannot but appreciate the fact that in performing muscular movements we are at the same time building up the brain. An interesting exhibition of lantern slides, illustrating some practical phases of gymnastic work, was given by Professor R. Pertuch of the Philadelphia Turngemeinde.

Esther Kuhn, Secretary.

REPORTS OF THE COUNCIL.

April 1, 1898.

Present: Drs. Hartwell, Sargent, Fitz and Mr. Eberhard.

Dr. Hartwell in the chair.

The secretary reported the receipts of $262.00 during the past month.

The following names were voted on favorably as members of the A. A. A. P. E.: Miss Rose M. Gyles, Hull House, 335 Halstead street, Chicago, Ill.; Professor Anne E. Morgan, Wellesley College, Wellesley, Mass.

Dr. Fitz reported sufficient material in hand for the March number of the AMERICAN PHYSICAL EDUCATION REVIEW.

The chairman presented an outline of programme for the A. A. A. P. E. convention, which was approved.

The committee on programme was instructed to prepare a circular and send the same out to the members of the association.

The treasurer reported balance on hand April 1, $132.22.

May 6, 1898.

Present: Drs. Hartwell, Sargent, Channing Fitz, Miss Homans, Mr. Eberhard and Miss Narey.

The following candidates were admitted by vote to membership: Miss Maude Southworth, 810 East Miner avenue, Stockton, California; Miss Rachael L. Hutchinson, Swarthmore College, Swarthmore, Pa.; Miss Mary A. Mahoney, 55 Antrim street, Cambridge, Mass.; Mr. F. B. Walker, St. Bartholomew's School, Morristown, N. J.

Dr. Fitz reported receipts from members during the past four months as follows:

January	$ 35.00
February	82.00
March	232.00
April	160.00
Total	$509.00

The treasurer reported a balance on hand May 6 of $404.32.

Dr. Fitz reported on the publication of the March number of the REVIEW.

Dr. Channing moved and it was voted, that the chair appoint a committee of five with power to add to its numbers, to act as a committee on arrangements with full powers.

The chair appointed to serve on this committee: Dr. Sargent, C. Eberhard, Miss Narey, Dr. Channing and Dr. Fitz. It was voted to hold a special meeting Friday, May 20.

May 20, 1898.—Special Meeting.

Present: Drs. Sargent, Fitz and Huling, Mr. Eberhard and Miss Narey. Dr. Sargent was chosen chairman.

The records of the preceding meeting were read and approved.

Dr. Fitz for the committee of arrangements for the convention read to the council correspondence which showed that while the Boston Society favored holding the convention in June and manifested a thoroughly cordial spirit of hospitality, representatives of seven other societies advocated postponement.

On motion of Mr. Huling, it was

Voted, That, in view of preferences for delay, shown by recent correspondence, occasioned by the spirit of unrest and preoccupation incident to the national situation, the proposed Convention of the A. A. A. P. E. be postponed from June, 1898, to spring of 1899.

The following were elected to membership: Edward S. Bacon, M.D., 676 North Main street, Providence, R. I.; M. Emma. Kelley, 524 Penn avenue, Pittsburg, Pa.

OFFICIAL ANNOUNCEMENTS.

At a special meeting of the National Council of the A. A. A. P. E., held May 20, it was voted,

"That, in view of preferences for delay, shown by recent correspondence, and occasioned by the spirit of unrest and preoccupation incident to the national situation, the proposed Convention of the A. A. A. P. E. be postponed from June1 1898, to the spring of 1899."

The National Council felt constrained to postpone the holding of the first National Convention from June, 1898, to some convenient date in the year 1899, by reason of the fact that a majority of the societies expressed an opinion in favor of such action in response to the circular of inquiry addressed to all the constituent societies under date of May 11.

A small convention could very possibly have been gathered from among the societies of New England and New York, and the council had already secured various representative speakers in New England to address the association at its general meeting; but in view of the preoccupation of educators and of the public with questions of unusual and novel interest, and the uncertainty of securing full representation from the societies, the postponement of the convention appears to be justified. The postponement for a year will enable the societies to deliberate more carefully upon the subjects which should be discussed at a general meeting of the association.

No action has been taken by the council towards determining the programme of the postponed convention. It seems wise to hold to the principal features of the provisional programme set forth in the announcement of the council in the March (1898) number of the Review. Unless the societies express an opinion to the contrary, it may be expected that in accordance with the decision of the societies, Boston will be the place for holding the first National Convention. The council would welcome from the societies any suggestions as to the amplification or modification of the provisional programme already set forth. It cannot be too emphatically stated that the democratic principles embodied in the organization of the association demand that the convention shall represent the whole association and its interests rather than the interests of any single section of the country or any particular group of societies.

The council deems it of importance that in addition to a comprehensive consideration and discussion of the association's prospects and policy the delegates shall vote upon the questions propounded for discussion and resolution in the provisional programme, or upon questions of a similar nature in order that an authoritative expression of the beliefs and desires of the association as a whole should be set forth so distinctly and clearly that the general and educational public cannot fail to understand what the aims and policy of the A. A. A. P. E. are.

The council, therefore, urgently requests the societies as soon as possible to consider carefully the questions suggested for discussion in the provisional programme, in order that the final programme and the discussions under it may fully reflect the deliberate and reasoned opinions of the majority of the membership of the association. It will materially add to the interest and value of the convention when it shall finally be held if the delegates and attendants are prepared to give authoritative expression to the views of the society which they represent. There are two particular questions that should be so thoroughly discussed as to be practically settled in advance of the meeting of the convention, viz., (1) the question as to what city shall be chosen as the headquarters of the next National Council, as it is an open question whether the best interests of the association do not demand that the headquarters should not continue in Boston beyond the time of holding the first convention, and (2) the question as to the best means of conducting the AMERICAN PHYSICAL EDUCATION REVIEW. It is the desire of the council that the convention shall be held at such time and place as shall subserve the interests of the majority of the members of the association. It desires to take advantage of the opportunity offered by the postponement of the convention to plan deliberately and without haste; it therefore invites full and early communications from the societies and members at large of any suggestions that they may be pleased to make concerning the order of business to be considered at the convention.

For the Council,
EDWARD M. HARTWELL, President.

EDITORIAL NOTE AND COMMENT.

MEMBERSHIP IN LOCAL SOCIETIES.

THE question has frequently been raised by the officers of local societies whether they can enroll as members of these societies persons who are not members of the National Association and who do not care to join it. The Constitution specifically settles this question as follows:

Article III., Section 1.—The membership of the societies belonging to this association shall consist of active, associate and honorary members.

Section 5.—Active and associate members shall pay the same dues and be entitled to the same privileges, except that the president, secretary, and at least three other members of the executive committee, shall be chosen from the active members.

Article VII., Revenue. Section 1.—One dollar shall be due at the annual meeting from each active and associate member.

Several societies have solved the problem by admitting persons partially interested in the subject to a form of membership which does not permit them to vote or to hold office and yet enables them to receive the notices of the meetings. Such members, of course, are not entitled to the AMERICAN PHYSICAL EDUCATION REVIEW or to other privileges which accrue to the regular members. While this relation is of distinct value to the societies and increases the local interest in the work, it is not to be encouraged unduly for the reason that the interests of the association at large should be of paramount importance to each member of each society and those who are working in the various fields of physical education should be sufficiently interested to support the National Association in its endeavor to educate popular opinion to a recognition of the physical needs of the community, and to furnish the members with the best literature available to aid and broaden them in their work. The national dues are so small and the immediate return is so large that it would seem as if the number desiring but partial association with the local societies should be small. The feeling of the National Council is that such membership (?) is to be encouraged only so far as it is of distinct aid to the individual or to the cause of education; where it is liable to jeopardize either, it is to be discouraged.

PRIVILEGES OF MEMBERSHIP IN THE A. A. A. P. E.

MEMBERS of the A. A. A. P. E. who have paid the dues of one dollar to the National Association for the current year are entitled to receive (1) a certificate of membership, (2) the numbers of the AMERICAN PHYSICAL EDUCATION REVIEW as they are published, and (3) all notices of a general character and all other publications of the National Council which may appear during the year. They are entitled to attend the meetings of the National Convention whenever held, to take part in discussions at those meetings, and to vote in the same if they are delegates of the local societies to which they belong. If they are members of the local societies, as well as of the National Association, they are entitled to receive, upon payment of the local dues, the notices of the meetings of the local societies and such other notices or publications as the local societies may issue during the year. The membership fee in the local societies varies from fifty cents to two dollars per year. The fee for the National Association ($1.00) has been kept as low as is consistent with the needs of the association. With the present strong membership the success of the REVIEW is assured and it will be made more valuable as the funds available for this purpose are increased by additions to membership, sale of reports, subscriptions to the REVIEW, etc.

The cause of school gymnastics in the United States has suffered a distinct and severe loss in the recent death of Mr. Carl Betz, the director of physical training in the public schools of Kansas City, Mo., since 1885.

Mr. Betz was a native of Belleville, Ill., and was a graduate of the seminary of the North American Gymnastic Union. Prior to the introduction of gymnastic instruction into the schools of Kansas City in 1885 under his direction, Mr. Betz had served as a teacher of physical training successively in South Bend, Louisville, Ky., and Terre Haute, Ind.

Mr. Betz was an open-minded, kindly, genial man. His work was characterized by enthusiasm and a spirit of sympathy. He was not only an inspiring and successful, practical teacher, but was a prolific author, and by his series of manuals contributed greatly to the spread of German gymnastics and gymnastic games, particularly in the West. Mr. Betz was not active as a controversalist; his work was constructive, and it is a pleasure to note that it was highly appreciated, both by his colleagues in the North American Gymnastic Union, and by the educational authorities in Kansas City where he was best known.

The newly established baths departments of the City of Boston is manifesting much energy in the prosecution of its work, namely, the care and regulation of the swimming baths which at present belong to the city of Boston, but have hitherto been under the charge of the health department, and in the development, as has been already noted, of public gymnasia. Hitherto, the swimming baths of Boston have served for recreative purposes chiefly, and no attempt has been made to utilize them for purposes of instruction in swimming. The baths commission have made a new departure and have appointed a corps of instructors in swimming to teach especially the school children of the city during the summer vacation of 1898. Mr. Hartvig Nissen, acting director of physical training in the Boston public schools, has been appointed to direct the instruction in swimming at the floating baths and a corps of six or eight male instructors have been appointed to act as his assistants. The results of this experiment will be watched with great interest, and it is already more than probable that large numbers of school boys and girls will avail themselves of the opportunity afforded them for the first time of having free instruction in this valuable and interesting form of physical training.

The town of Brookline serves as a model for progressive towns of the United States in the unusual provision it furnishes for the physical education of its children. In order that the conditions favorable for the physical development of the children may be fully presented to the readers of the Review, the report of the special committee of physical training, appointed by the school committee of the town, is printed in this number.

This report suggests not only the work that is being done in Brookline, but also the method Brookline adopts of insuring that the work shall be of the best character by putting it in charge of progressive and responsible people and by calling upon experts for general oversight and criticism.

In view of the growing belief in the wisdom of providing open spaces as playgrounds for the children in the crowded quarters of the great cities of the country, special attention should be given to the authoritative statement furnished by the park department of the city of Boston, of the number of acres and the cost of the playgrounds belonging to the city that are under the charge of that department and printed in this number of the Review. In several cases the action of the department means simply the securing and preëmption of land to be developed under the terms of a recent act of legislature as playgrounds under the control of the city. In two cases, namely that of the Charlesbank and of Wood Island Park, out-of-door gymnasia well furnished with apparatus have been in use for several years. It is confidently expected that the policy so successfully inaugurated at the Charlesbank and Wood Island Park gymnasia will be carried into effect in most of the other playgrounds mentioned in the list. Indeed, the newly constituted baths commission of the city of Boston, which is to have the care and regulation of the playgrounds and gymnasia, has had plans drawn for the erection of a number of gymnasium buildings which it is proposed to construct and set in operation in the near future.

Should the city of Boston succeed in this policy of establishing gymnasia in various quarters of the city, it may be hoped that the school committee of Boston will be stimulated to make more generous and adequate provisions of gymnasia for the benefit of the school children whose physical education thus far consists chiefly of instruction in free movements and a few simple gymnastic games.

NEWS NOTES.

(Items of interest will be published in this department as received.)

MEETING OF THE NATIONAL EDUCATIONAL ASSOCIATION IN WASHINGTON, JULY, 1898.

PHYSICAL EDUCATION SECTION.

SESSIONS IN UNIVERSALIST CHURCH, THIRTEENTH AND L STREETS.

Friday, July 8, 3.00 P. M.

The Effect of Exercise on the Vital Organs. Discussion by Dr. Wm. T. Harris, U. S. Commissioner of Education, and Dr. Henry Ling Taylor, New York City.

The Mental Factor in Physical Training. Dr. Lightner Witmer, University of Pennsylvania, Discussion opened by Dr. E. M. Hartwell, Secretary, Municipal Statistics, Boston, Mass.

Business. Appointment of committees.

Monday, July 11, 3.00 P. M.

The Influence of School Life on Curvature of the Spine. Dr. R. Tait McKenzie, University of Montreal, Montreal, Canada. Discussion.

Play in Physical Education. Geo. W. Johnson, Superintendent Public Schools, Andover, Mass. Discussion opened by Dr. G. W. Fitz, Harvard University, Cambridge, Mass.

Business. Election of officers.

NEW YORK STATE TEACHERS' ASSOCIATION.

(Physical Education Section, Central Church, Alling Class Room.)

Miss Sophie J. Nicolai, Supervisor of Physical Education, New York City (Manhattan and The Bronx), Chairman.

Jennie J. Goetz, Instructor P. S. No. 10, New York City (Manhattan), Secretary.

Wednesday Morning, July 6, at 11 o'clock.

Introductory Address.—Miss Sophie J. Nicolai.

Paper.—Some Essentials of Physical Training for Public Schools. Miss Jessie H. Bancroft, Director of Physical Training, Public Schools, New York City (Brooklyn). Discussion.

Thursday Morning, July 7, at 11 o'clock.

Paper.—Physical Education a Basis for Vocal Expression. Miss Mary Cecil Freeston, Director of Physical Training, High School for Boys and Girls, New York City (The Bronx).

Paper.—Physical Basis of Mental Effort. W. G. Anderson, M.D., Associate Director, Yale University Gymnasium, New Haven, Conn. Discussion. Election of Officers.

The girls in the schools of Russia are forbidden to wear corsets by a recent ministerial decree.

Iceland possesses 26 schools which are attended by 900 children. The curriculum henceforth gives a place to gymnastics and swimming.

The new Japanese recruits show deterioration. The military authorities say that out of 10 conscripts, 8 or 9 are unsuitable. Near Tokio only 20,000 of the contingent could be secured. The aristocratic class especially is tainted in a large proportion; this constitutional inferiority is attributed to the absence of physical exercise.

An imperial ordinance has just ordered the general organization of physical education. Dr. Wushima, medical counselor to the minister of public instruction, thinks that even the future of the country is in danger.

Motions favorable to the propagation of gymnastics have been considered and voted by the Italian government.

There are two gymnastic normal schools for women in Italy, one at Turin and the other at Naples.

It is reported that France and Spain are the only two countries which have not normal schools of gymnastics for women.

The German gymnasts of South America have formed a federation and have given their first federal fête.

Steps are being taken to establish a Swiss national festival having the character of the Olympic games.

The annual Marathon race of twenty-five miles, of the Boston Athletic Association was won by R. J. McDonald of Cambridge, Mass., in 2 hours, 42 minutes. The best previous B. A. A. time was 2 hours, 55 minutes, 10 seconds. At Athens in the Olympic games two years ago, the time was 2 hours, 55 minutes, 20 seconds.

The national German Turnfest takes place in Hamburg, Germany, July 23 to 26.

July 22.—Reception of clubs and officials by the committee of the Ninth German Gymnastic Festival.

July 23.—Mass exercises, gymnastics, fencing and games.

July 24.—Competitions in gymnastics, fencing, games, etc., and general performance of gymnastic exercises.

July 25.—Continuation of competitions, announcement of the winners, and excursions.

It is claimed that the grace and strength of the Italian women of the higher class is due to the physical exercise they take, especially in the way of fencing and sword exercises.

The French National Gymnastic Tournament, held at Roubaix, consisted mainly of society competition and an exhibition of calisthenics in which 3,000 persons participated. The society competition was divided into four groups, viz., (*a*) Calisthenics, (*b*) Exercises on parallel bars, (*c*) Exercises on horizontal bars, and (*d*) Two forms of jumping. Beside the above 23 divisions of school children participated. 556 prizes were awarded, representing a value of 30,000 francs.

The Swiss Gymnastic Tournament at Schaffhausen was visited by 50,000 spectators; 396 gymnasts competed in exercises on the horse, 4,000 persons took part in the calisthenic drill. 210 societies contended for honors. There were special contests in putting the shot, throwing the javelin, wrestling, pole-vaulting, hurdle-racing, high-jumping, broad-jumping, climbing and swimming.

Statistics of accidents are being collected in many of the larger cities. In Berlin the small number of 51 accidents occurred last year. This is exceptionally small when one considers the large number of pupils taking part in gymnastic exercises. Of the 4.000 children attending the parochial schools but 10 were hurt; of the girls' institutes and intermediate schools, 9,000 pupils in all, the injured reached the number of 23, and in the higher institutions of learning with 1,200 students, only 18 met with accidents, which consisted mainly of sprains of the different joints and strains of tendons.

Professor Albert Eulenberg, in a paper before the "German Association" treats the subject "Mental Overwork of School Children." He suggests that the required mental studies be placed on the morning programme and be limited to four hours a day, and that the afternoon be devoted exclusively to gymnastics and manual labor, as drawing, needlework, etc. Each lesson should be followed by a short recess and the various branches of instruction comprising the programme should be arranged according to the mental strain produced thereby. He also claims that short and frequent vacations are more beneficial than one of long duration.

The effect of school work on the health and physical development of children was the subject of an interesting lecture delivered by Dr. Schmidt-Monnard of Leipzig. His observations cover a period of many years and lead to the following conclusions:

1.—Children show little change in height and weight during the first year or grade at school; children, however, entering school at the age of seven (7) years are physically better developed than others of the same age who have attended school the year previous.

2.—Acute diseases found among school children are not due to the instruction at school but are dependent upon the hygienic influences of the school-buildings. Lack of cleanliness, fresh air and light tend to decrease the power to resist contagious diseases.

3.—Chronic disturbances as constipation, headache, insomnia, and nervousness in general are more pronounced among pupils of the higher than those of the intermediate schools. In the latter about 50 per cent. of the girls and 35 per cent. of the boys suffer until puberty when it falls to 27 per cent. for girls and 18 per cent. for boys. In the higher schools these disturbances reach 60 per cent. and seem to disappear gradually after the 16th year. Eight per cent. of these children suffer from insomnia caused by social entertainments at their own home. In the higher institutions for boys where the studies are restricted to the morning hours, and games are compulsory, the percentage is from 20-30, whereas in schools where studies are compulsory, morning and afternoon games optional, the high mark of 79 per cent. has been reached; 18 per cent of these boys suffer from insomnia.

4.—The causes of these manifestations may be attributed to the many "extras" required by the parents (such as music, languages, needle-work, etc.), and principally to the lack of providing proper physical education on the part of school-boards.

Dr. Eulenberg claims we must not say "Our children are too weak to attend school," but "The schools ask too much, hence must reduce the requirements."

BOOK NOTICES AND BIBLIOGRAPHY.

Gymnastic Stories and Plays for Primary Schools. By Rebecca Stoneroad, Director of Physical Training in the Public Schools of Washington, D. C. 86 pages; 12 illustrations. Boston: D. C. Heath & Co., 1898. $0.75.

Contents:—Introduction; Special Directions to Teachers; Preparatory Drill on Positions and Signals; 8 carefully analyzed games for the first year, with such suggestive titles as, "Trees in a Storm," "Autumn in the Woods," "A Picnic;" 7 games for the second year, as "A Trip to the Zoo," "Bean Bag Exercises," "A Country Visit;" 12 briefly described School-room Plays and 18 Recess Plays. The book has unusually attractive illustrations and binding.

This little book should be in the possession of every teacher in the country who is engaged in elementary work. In it, the attempt is made to bridge the gap between the kindergarten methods and the more formal gymnastics. The result is a happy one and suggests a field that can be worked to advantage by the progressive teacher. The objection to most plays in a scheme of physical education is that the play impulse is apt to predominate. Under these circumstances the physical effects are likely to be one-sided and the exercises are difficult to regulate and hard to control. The children soon play themselves out, as it were, if the action is limited to the play itself, and then naturally "want to play something else."

The author has ingeniously overcome these difficulties by basing the action of the plays upon good anatomical and physiological grounds and then woven this action into the plays in the form of a story. In this way the teacher can appeal to the imagination of her pupils, and get their immediate attention and hearty cooperation in the work before them. If this advantage in method is supplemented with a good knowledge of applied anatomy and physiology and a little faculty of invention on the part of the teacher, the exercises can not only be arranged in a progressive series, but even be made to meet all the physical demands of the child's organism in a bright and interesting way. I bespeak for this book and the method it sets forth the success which they merit.

D. A. S.

Miss Stoneroad shows throughout a sympathetic appreciation of child nature, of its imaginative, its imitative powers, of its love of innocent pretense, of "playing" this or that is thus and so. By the appeal to the imagination, the child runs no risk of becoming listless; by the careful veiling of the educative purpose, his work does not become mechanical. Instead of the remote idea of "training the muscles," the immediate aim of imitating some well known natural movement or interesting phase of activity is presented. The ultimate purpose is successfully reached just because it is reached indirectly. It is not only the Hedonist who has to meet the paradox of not gaining that which is directly aimed at.

The games given are simple enough to be carried out successfully, complicated enough to arouse interest and the strenuous effort which follows in its train, varied enough to insure all-rounded activity. By their nature they cannot fail to educate the child by training that most important of faculties, the imitative, by sharpening his observation of nature, by enlarging his sympathy, by increasing and vivifying his imagination, by training him to promptness and accuracy of response, and finally by strengthening and developing his body.

It is, however, to be hoped that the teacher will not be led, through the success which must attend the use of Miss Stoneroad's methods, to force the process of imitation beyond a wholesome limit or to attempt to find in it a substitute for spontaneous play.

R. K. F.

Physical Exercises and Gymnastics for Girls and Women. Arranged for use of Teachers in High Schools, Private Schools, Gymnasia, etc. By F. J. Harvey, Principal of West of England Physical Training School and Gymnasium, Exeter; late Director of Exeter Hall Gymnasium, London. pp. x, 164; 103 illustrations. Longmans, Green & Co., Publishers. London, New York and Bombay, 1896.

As the author states in the preface, this book is not intended for professional teachers of gymnastics, but for teachers in public and private schools who have had no special training in this particular branch of education. In view of this fact, an attempt is made to show the effect of exercise upon the muscles, brain and nerves, respiration, circulation, digestion, etc. In an equal number of pages, some six or seven, the author undertakes to instruct the untrained teacher in the art of remedying certain physical defects such as drooping head, round shoulders, lateral curvature of the spine, projecting hips, flat-foot, knock-knees, etc. We must confess that it is a little shocking to one's professional pride to see the treatment of such subjects flippantly disposed of in seven or eight lines. In our opinion it would be much better to leave remedial gymnastics in the hands of the professional teachers for whom this book is *not* intended. The chapter on "Gymnastics Compared with Outdoor Exercise" is very good, but the finest passage in this chapter is that attributed to Dr. Blatin in a speech made by him in the French Chamber of Deputies:

"It is the teaching of gymnastics proper on which you must insist, for gymnastics possess this incomparable superiority to all the other exercises of the body, that they are the only method of physical culture; they alone comprehend a collection of exercises which enable them to control each division of the muscular apparatus; they alone are able to put into action a definite physiological group, so as to carry out in it special indications; they alone, in a word, are able to graduate muscular effort and to vary it within the widest limits. They measure it, they proportion it (so to speak) with marvellous precision, and therefore they are equally beneficial to the feeblest natures and the most vigorous constitutions."

The practical exercises treated are the so-called Free Exercises, exercises with Wooden Dumb-Bells, Short Wands, Bar-Bells, Rubber Balls, Figure Marching, German Vaulting Horse, Parallel Bars, Horizontal and Slanting Ladder, and some twelve or fourteen Gymnasium Games. These exercises are all modeled after the German type, and are very well selected and profusely illustrated. The method of presenting the exercises in columns, where the number of the exercises falls in one, the preparatory commands in another, and the executory commands in a third, is admirable. In this connection it would be interesting as well as instructive to know why the author in this treatise has departed from the method which he employs in his "Teacher's Manual of Physical Exercises" published in 1894. For instance, in the manual referred to, the preparatory command is "Head to Right" and the executory command is "Bend." In the present book, the preparatory command is "Bend head to right," and the executory command is "One." In the preparatory command, "Head to right," one is left in a state of doubt and expectancy as to whether the action is to be bend or turn; in other words he is not prepared when the executory command "Bend" is given. On the other hand the preparatory command, "Bend head to right" leaves no doubt in the mind of the pupil as to what the action is to be, and when the executory command comes he is prepared to obey it. The former method may tend to fix the attention of pupils, and afford a good exercise in auditory reactions, but when it is considered that most pupils are kept in a state of more or less constant attention during their schoolroom life, it is a serious question as to how far this energy should be prolonged in any form of gymnastics. In this book the American teacher will find little that is novel in the exercises, Dumb-Bells, Wands, Bar-bells or heavy apparatus, but the series of Ball Exercises are very good, and the Figure Marching is the best that we have seen. We are of the opinion that marching is made altogether too much of as an exercise, but as an example of the extent and variety of this kind of floor work, the book is well worth having.

D. A. S.

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IV. TOYS AND GAMES FOR CHILDREN AMONG THE ANCIENT HELLENES.

EDWARD M. PLUMMER.

We have endeavored to describe at its height the system of professional athletics in ancient Hellas. Such a system must necessarily have influenced the more widespread practices whereby the young developed their bodies, just as today the system of professional athletics is a model for college training and exerts an influence upon the sports of even young children. But professional athletics, even in ancient Hellas, must be regarded as quite distinct from that important phase of Hellenic education called γυμναστική.

In Sparta physical culture was a stern business and could by no means be styled a pastime; it was almost the sole requisite of education. But it was in Sparta that professional athletics were held in least favor. Spartan authorities did not delude themselves; being thoroughly in earnest to produce a race that was hardy and valiant to the last degree, and regarding physical culture as a serious and all-engrossing business rather than an exciting amusement, they quickly discerned that the specialism of professional athletics was detrimental to this end.

The greatness and welfare of the state was the standard whereby all Spartan life was regulated. The needs of the state were ever uppermost in the minds of Spartan authorities. They neither deluded themselves in their estimate of these needs, nor did they even dream of a compassion that would deter them from establishing and executing regulations whereby these needs would be met. In Sparta the unfortunate individual who did not conform in promise or attainment to the criterion of a Spartan citizen found no pity.

And what was the criterion of the Spartan citizen? It was the man, without defect of body, who had learned not merely to stifle outward show of fear, but who had early learned to be absolutely fearless, who had learned to be calm while suffering agonizing pain; it was the man whose powers of endurance were very great, who could march long distances over a rough country without fatigue, who could then halt and await the onset of an enemy with a glad and confident heart, and who could engage his enemy and be victorious; it was the man who loved combat.

The Spartan state possessed absolute authority over its citizens through all stages of their lives. Even before birth that authority was exerted; for the state prescribed the age at which citizens should marry, and approved or vetoed all propositions of marriage. If at the present day we exercised the same care to bring sound children into the world there would be little need of being "born again." Spartan infants were subjected to the judgment of a body of selected citizens, and if approved by the latter became thenceforth the objects of the care and direction of the state, but if condemned as not promising health and vigor they were killed. According to Plutarch unhealthy infants were exposed in the apothetæ, a sort of chasm under Taygetos (Ταΰγετος) and left to die.

Until the age of seven, Spartan children were left to the care of their parents, but even during this early period they received a foretaste of future deprivations and exercises. Their food was very plain and limited in quantity. Care was taken to eradicate the little fears of childhood. They were taught not to be afraid in the dark or when left alone.

Many interesting little sports were in vogue among Hellenic children, and it may well be believed that in Sparta they were practised with a peculiar earnestness. Most of the amusements of modern children were also the delight of Hellenic children, while some of the sports of the latter are no longer in use. Even the infant's rattle (πλαταγή) was a Greek toy ascribed to the invention of the philosopher, Archytas. Then there were hoops (*τροχοί* or *κρίκοι*). The childish game of rolling the hoop was called *κρικηλασία*. The *κρίκος* corresponded to the Roman trochus described by Horace (*Ode* 3; 24, 57) and Ovid, as well as by Propertius, Martialis, and other writers. The *κρίκος* was a large hoop probably of iron or copper. According to Antyllos, its diameter was less than the height of a man, reaching probably to his chest. The implement used in rolling it is said to have been a crooked-necked iron with a wooden handle, called *ἐλατήρ* (Mart. xiv, 169). Sometimes, as with us, the hoop was set round with small metal rings or bells which when in motion caused a jingling sound very pleasing to a child's ears. Some regarded these rings as unnecessary, but Antyllos favored them on the ground that the sound they produced added much to the child's happiness and engaged his attention in a pleasant way. Antyllos also considered this game to be a very healthful form of exercise and advsied that it be practised immediately before bathing and eating. The familiar top (*βέμβηξ, βέμβιξ ρόμβος, στρόβιλος*), old as the days of Homer, was a common amusement with Greek boys, as in our own times — "*στρόμβον δ' ὣς ἔσσευε βαλὼν περὶ δ' ἔδραμε πάντη*" (*Il*. xiv, 413).

The humming top, used by Greek and Roman children and made to revolve by whipping, is also prettily alluded to by Virgil in the following lines:

> "Ceu quondam torto volitans sub verbere turbo,
> Quem pueri magno in gyro vacua atria circum
> Intenti ludo exercent."
>
> *Æneid* vii, 378–380.

Kite-flying also seems to have been known to the Greek children. Stilts (*καλόβαθρα*) were much used by children and also by adults in certain mimic dances. The girls had dolls (*κόραι*) of wax or clay, and the usual paraphernalia connected with this ever popular plaything. Many of these, which still survive, show that they were painted and that the arms and legs were so fastened with strings as to be easily movable. The word *κόρη* literally means a "little girl." At marriage the Greek girls dedicated their dolls to Artemis, the Roman girls to Venus. If they died unwedded, their dolls were buried with them. The terms *δάγυνον, δαγύς* and *πλαγγών* were often applied by the Greeks to the wax doll.

The swing (*αἰώρα*) occupied the same position in Greece as in our nurseries. Then there were clappers (*πλῆκτρα*), toy-carts (*ἁμαξίδες*), hobby-horses (*ἱππίδια ξύλινα*), toy soldiers and animals, made of clay.

In addition to these toys, many games may be mentioned. From the standpoint of education, games for children are worthy of consideration. For, if human nature is most plainly shown in sport, then from these games one can obtain a clear idea of a child's character, inclination and intellect, the recognition of which should be of utmost importance to the educator. Games also furnish endless and varied material for the cultivation of the child's mental powers and natural talents, which are developed by physical exercise. The Spartan children were superior to the other Greek children in the power of expression, although they were not so highly educated. This is no doubt due to the fact that at a very early age the Spartan children were forced into a free life in the open air and to systematic gymnastic exercise. The Romans, also though they did not consider gymnastics of so much importance as did the Hellenes, did not neglect them. Being a warlike people, they began to develop and strengthen the body of the child at an early age. The sports of childhood are as important to the boy as work is to the man, and demand as much of his strength and intelligence. The victory in a game gratifies the child as a real victory in battle delights the conqueror. Besides, most games are imitations of the various occupations of adult life and cause the child to show a decided inclination for some particular branch. Plato, as well as other philosophers, recognized this fact. He claimed that a boy, in order to be skilled in a special line of work, should be trained to that work from childhood, and that his first training should be by means of his games. Such preliminary instruction should be followed by that based on theory and science. Experience has often corroborated this theory of Plato, and Hellenic life itself furnishes the best illustration of it. According to the legend, Achilles, attired in the garb of a girl among the daughters of the king, betrayed himself to the keen eye of Odysseus, by handling the weapons, placed by the latter among the ornaments which he offered for sale. Strepsiades, hard pressed by his creditors, says that his son's extreme fondness for horses and chariots has ruined him, and continuing, he relates with pride how as a mere child his son had made tiny leather carts, moulded houses and ships, and carved frogs from pomegranate rind. (Aristophanes, *Nub.* 877.) Cato the Younger also, says Plutrach, gave strong indications of his character by the games he played. The youthful Nero amused himself daily by playing with ivory four-horse chariots, thus indicating his future passion for chariot-racing in the circus. The distinguished men of antiquity, when at home, often entered heartily into the children's games. The famous general, Agesilaos, is represented as riding the hobby-horse with his little boys. Alkibiades was surprised to see Sokrates doing the same thing while at play with young Lamprokles. The Romans, a more serious people than the Greeks, often sought recreation in ball-playing. Cato the Elder, and also Scævola, are mentioned as expert ball players.

The Hellenes were thus well aware that uninterrupted employment was detrimental to both physical and mental life. This idea was most beautifully expressed by Pythagoras in his hygiene of body and soul. Therefore, in connection with the gymnastic system of the Hellenes, were developed many gymnastic games which did not require any special apparatus and which were not intended for tests of superior strength, but merely to furnish pleasant and suitable physical exercise.

A game called *ὀστράκου περιστροφή* was often played. The boys arranged themselves in two divisions on either side of a line. One of them then held up a piece of broken crockery, or an oyster shell, one side of which was blackened with tar. One division chose the black side, the other the white. A boy then threw the fragment, with the words, *νύξ, ἡμέρα*. The advantage belonged to that side whose color appeared uppermost after the throw; this division then pursued the other; those who were captured were called donkeys and were debarred from further participation in the game.

The *ἐποστρακισμός* (*Pollux* ix, 119), a more informal game, was played by boys on the beach, or on the shore of a pond. The sport consisted in "skipping" smooth, flat pebbles or shells over the surface of the water. The boy who "skipped" his pebble to the greatest distance, or, perhaps, made it cut the water the greatest number of times, was victor. This pastime, known as "Ducks and Drakes," is still in favor with boys.

There were two games for testing bodily strength, the *διελκυστίνδα* and the *σκαπέρδα*. In the *διελκυστίνδα* a party of children separated into two divisions, each of which faced the other in a row, so as to give every member an opponent. Probably a line of some kind lay between the two divisions, and the game consisted in each boy's striving to pull his opponent across it by means of a rope. The victory was decided when all members of one side had been forced to the other.

The *σκαπέρδα* was a game in which a rope was passed through a hole made in a tree-trunk or rough pillar, at some distance from the ground. Two contestants then took their places on opposite sides of the pillar, with their backs to each other and each holding an end of the rope. If one of them could succeed in lifting the other from the ground he was declared victor, but so difficult was the feat that the phrase *σκαπέρδαν ἕλκειν* came in time to be a proverbial expression applicable to very difficult tasks. This sport was one of the amusements at the Attic Dionysia.

"Blind man's buff" was played with slight variations under the name *χαλκῆ μυῖα*, or "brazen fly," very prettily described by *Pollux* ix, 122. *ἡ δὲ χαλκῆ μυῖα, ταινία τῶ ὀφθαλμῶ περισφίγξαντες ἑνὸς παιδός, ὁ μὲν περιστρέφεται κηρύττων· χαλκῆν μυῖαν θηράσω· οἱ δὲ ἀποκρινάμενοι, θηράσεις ἀλλ' οὐ λήψει, σκύτεσι βιβλίνοις παίουσιν αὐτόν, ἕως τινὸς αὐτῶν λήψεται.* One child was blindfolded and was obliged to capture one of the rest. With outstretched arms he groped about, repeating the words *χαλκῆν μυῖαν θράσσω*, "I will hunt a brazen fly." The others responded *θράσσεις ἀλλ' οὐ λήψει*, "you will hunt, but you will not catch," and at the same time struck him more or less lightly with whips or threads of papyrus. When one of them was caught, he was blindfolded in place of the other, and the game repeated.

A game called *χυτρίνδα* (*Pollux* ix, 110–113) demanded great dexterity on the part of the player. One child sat in the middle and was called *χύτρα*. The others ran round him, pinching or striking him until by a quick movement he managed to catch one of them, who was obliged to take his place and be the *χύτρα* in turn. Sometimes the child ran about in a circle, carrying on his head a jar which he held with his left hand. His companions would strike him while asking him the question, *τίς τὴν χύτραν*; (who has the jar?), to which he answered, *ἐγώ*, M*ίδας* (I, Midas). If he touched one of the children with his foot, that child had to take his place.

The term *χυνδαλισμός* (*Pollux* ix, 120) was applied to a juvenile play, which somewhat resembled our peg-top. The game consisted in flinging short, pointed poles into the earth, in the following manner. The first child holds his pole, directed downward, and then throws it so as to leave it standing upright in the ground. The second child then tries to throw his pole in such a way as to upset the first one and leave his own standing in its place. The former player then tries his skill, and so on. The arm and eye are especially trained in this game, which is still played in some countries, generally in the spring when the ground is soft.

A game especially suited to develop attention was the following. The players formed a ring. One of them was provided with a cord which he tried to place beside another child without being detected in the act. If he succeeded in doing this, the one beside whom the cord was found had to run round the ring amid the blows of his playfellows; if, on the other hand, he had noticed the other when putting the cord there, that one would have been obliged to run round the ring himself.

A game resembling the modern jack-stones, in which five pebbles were flung from the back of the hand and caught in the palm in falling, was played under the name of *πεντάλιθος*. This game was much in favor with Hellenic women, as well as with children, and was said to be the favorite amusement of the famous beauty, Phryne of Athens.

The game of king (*βασιλίνδα*) consisted of feats, done by one child at the bidding of another, as a soldier would obey a king. Who should be king and who soldier was decided by lot.

A favorite pastime with children was the game called *ἀρτιασμός* or "Odd and Even" (*Pollux* ix, 101), in which they guessed whether the number of objects one held concealed in his hand was odd or even. Dice, nuts, coins, etc., were used for this purpose. The amount won or lost was either the articles themselves or a sum of money staked upon the guess. Horace also in the Satires alludes to this game under the name *ludere par impar* (*Satires* 2, 3 ; 248). Still another game of guessing was *κολλαβισμός*, in which a child, with closed eyes, guessed who had given him a box on the ears, and also which hand he had used in striking him.

Greek children often played at the game called "hunt the slipper" (*σχοινοφιλίνδα*), a piece of rope being used instead of the slipper. The modern "hide and seek" was the Greek *ἀποδιδρασκίνδα*. "Kiss in the ring" (*κυνητίνδα*) is another ancient game of which, however, we possess no correct details. "Ride a cock horse"(*κάλαμον περιβῆναι*) was also an amusement of great antiquity, and was very popular both in Greece and in Rome. Horace in the Satires (2, 3 : 248) refers to this sport in the following words : *equitare in arundine longa.*

The Greek and Roman children played several games of skill with nuts, which resembled very closely our modern game of marbles. Nuts played so important a part in childish sports that *nuces relinquere* became a proverbial expression for "putting away childish things." The nuts were pitched into a circle drawn on the ground called *ὦμιλλα* (*Pollux* ix, 102-3) or into a hole *βόθρος* dug in the ground. Those that fell outside the circle were forfeited. The name delta was given to a certain game with nuts in which a triangle was chalked on the ground, and marked across with lines or bars running parallel to the base. The player then flipped nuts into the triangle, winning as many nuts as he crossed bars, provided, of course, that they did not roll outside the triangle, in which case they were forfeited. Therefore, the most skilful play consisted in driving the nut exactly to the apex of the triangle.

The ball (*σφαῖρα*) was not only a favorite toy among children, but it also played an important part in the physical exercises of youths and adults. No other gymnastic exercise was so popular among the Greeks and Romans of different periods as the ball games, though regarded less as a game than as an exercise for strengthening the muscles and cultivating grace and symmetry of body.

They were a favorite pastime in the Heroic age of the Hellenes as well as in later times when Greece was at the height of its glory. The Romans of the old Republic, and even in the reign of the emperors, also sought recreation in ball-playing. The continued favor which ball-playing enjoyed is sufficient proof of its benefit to the body. The earliest mention of ball-playing is found in two passages of the Odyssey (vi, 100; viii, 370; compare *Athen.* i, 15, c. Plutarch, *Alex.* c. 73). In the second passage, Homer represents ball-tossing as an adjunct to the dance. The game was accompanied by music and Odysseus was surprised at the marvelous dexterity of the players.

"And now Alcinoüs called on Halius and Laodamas to dance alone, for with them none could vie. So taking in their hands a goodly purple ball, which skilful Polybius had made them, one, bending backward, flung it toward the dusky clouds; the other, leaping upward from the earth, easily caught the ball before his feet touched ground again. Then after they had tried the ball straight in the air, they danced upon the bounteous earth with tossings to and fro. Other young men beat time for them, standing round the ring, and a loud sound of stamping arose. Then to

Alcinoüs said royal Odysseus: 'Mighty Alcinoüs, renowned of all, you boasted that your dancers were the best, and now it is proved true. I am amazed to see.'" (Palmer's translation.) This choric ball-playing was very popular at Sparta (*Athenaios* i, 246), and long survived.

The beautiful princess, Nausicaä (*Od.* vi, 100), and her companions accompanied their game by singing, and the women of Corcyra at a later period are said to have followed this ancient custom. (*Athen.* i. 24 *b.*) At Sparta and Sicyonia ball-playing was also accompanied by music.

The Athenians were so fond of ball-playing that they bestowed the right of citizenship on Aristonikos of Karystos and erected pillars in his honor, because he was so skilled and graceful a player. The Spartans held this game in as high estimation as did the Athenians, and to them is attributed the invention of ball games. Among the kings of Greece, Alexander is mentioned as favoring ball-playing.

In one of his plays, Πλυντρίαι, which was received with great favor, Sophocles introduced Nausicaä at play with a ball. Only the Milesians, who were devoted to agonistic contests, disdained ball-playing, as it did not tend to increase athletic ability and was of no value in helping them to win prizes in the public games. Balls are found carved on ancient monuments and tombs, especially on those of physicians, as ball-playing was a form of gymnastics, and gymnastics as a foundation for dietetics was a part of medicine. A gymnasium was not considered complete without having a special room, called the *σφαιριστήριον*, devoted to the games of ball. A special instructor (*σφαιριστικός*) who had made a scientific study of the games was appointed to superintend this exercise, for it required much skill and practice for one to become an expert in this branch of gymnastics.

The Romans were especially fond of ball-playing and considered it a pleasant pastime for men rather than for boys. Cato the Elder enjoyed a game of ball on the Field of Mars on the same day that he recieved the refusal of the consulate (*Oratio pro Archia Poeta c.* 6, §6). Cicero, however, in a public speech, decried ball-playing along with banquets and games of dice. The emperor, Augustus, enjoyed a game of ball. Pliny, the younger, relates that the aged Spurinna wrestled with old age by indulging in ball-playing. At the time of the emperors a game at ball was the most common exercise practised immediately before bathing in the *σφαιριστήριον* (ball-court) connected with the bath.

The Hellenes practised this exercise entirely naked or in light undress. The Romans, on the other hand, never disrobed during the game, except in the *σφαιριστήριον* and probably not always even there.

There were many different ways of playing at ball. Definite descriptions of some have been handed down to us, but of others we know simply by name. Pollux, Hesychios, Photios and Eustathios consider the game called *οὐρανία* to be identical with that practised by the Phæacians, as in this, according to Homer's description, the body was bent backward and the ball was thrown high up into the air. The players then tried to catch the ball before it touched the ground.

The game called *ἐπίσκυρος* (*Pollux* ix, 104) at first peculiar to Sparta, was very popular and took its name from the line *σκῦρος* which separated the two divisions. On either side of this line and parallel with it were drawn two base lines (*γραμμαὶ κατόπιν*) beyond which the players could not go in catching the ball. The latter was placed upon the *σκῦρος* (whence the name *ἐπίσκυρος*) and the players started simultaneously from their respective base lines. Whoever seized the ball first, threw it as far as he could toward the enemies' base line. The object, of course, was to force the line of enemies back, by constantly returning the ball further and further over their heads until they were driven over their own base lines. In this case a swift runner must have had a great advantage over the others, by securing the first throw.

A favorite game is described by the term (*φαινίνδα*). The peculiar feature of this game was that the player who held the ball appeared to aim it at a certain person, but really threw it in an entirely different direction, thus disappointing one contestant and surprising another. This game is said to have demanded the utmost dexterity of a flexible, elastic body. It also allowed a skilful player to display a fine carriage and much grace, as may be seen in the description of Damoxenos by Athenaios (*Athen.* i, 15, 7).

Νεανίας τις ἐσφαίριζειν εἷς . . . ὃς ἐπεί ποτ' ἐμβλέψειε τοῖς καθημένοις, ἦ λαμβάνων τὴν σφαῖραν, ἦ διδοὺς, ἅμα πάντες ἐβοῶμεν.

ἥ τ' εὐρυθμία, τό τ' ἦθος, ἡ τάξις θ' ὅση ἐν τῷ τι πράττειν ἦ λέγειν ἐφαίνετο, πέρας τι κάλλους ἄνδρες· οὔτ' ἀκήκοα ἔμπροσθεν οὔθ' ἑώρακα τοιαύτην χάριν, ἐσφαίριζε δ' οὐκ ἀνδῶς, καὶ κτησίβιος ὁ Χαλκιδεὺς φιλόσοφος.

The *ἁρπαστόν* was the name of a certain game at ball much in favor with the Greeks and also with the Romans of the time of the emperors. It required skill in throwing, rapidity of movement, power of estimating distance, as well as great care in catching the ball. The name of the game indicates that each player tried to prevent the other from catching it. This game is very frequently mentioned by Martialis, and according to him it was also played by women.

The term *ἀπόῤῥαξις* was given to a certain ancient game at ball in which the ball was thrown to the ground with great force and continually struck back with the hand, as it rebounded. The number of times the ball was forced to the ground was counted. The victor was called king and could order the others about. The loser was called donkey (*ὄνοξ*). In another form of the game the point was to keep tossing the ball up into the air as long as possible with the open hand.

According to Oribasios, Antyllos at a later period reduced ball-playing to a system, from a dietetic point of view. He made four divisions according to the size and kind of ball used, and which he described in detail. Galen also wrote exhaustively on the ball games, which he considered of great importance on account of the benefit which they imparted to the mental and physical powers.

In connection with these various ball games, they practised a peculiar gymnastic exercise with the *κώρυκος*, a leathern sack that must have resembled the modern punching bag on which pugilists try their fists. In form it resembled a ball, but in size and weight far surpassed the largest and heaviest ball. The *κώρυκος* was filled with fig seeds, meal or sand, and its size varied according to the age and strength of the individual. It hung from the ceiling so as to reach to about the middle of the player's body. The bag was to be kept in increasingly rapid motion by swinging it to and fro with the breast and hands. The game is alluded to by Plautus (*Rud.* iii, 4, 16). This sport cannot properly be styled a ball game, although it resembled one in some respects. Athletes also engaged in this game, and the ancient physicians regarded this exercise as very beneficial, because it not only strengthened the muscles and nerves, but also tended to prevent corpulency.

There are no records in classical literature to show that the Greeks and Romans used the bat or racquet in any of their games.

At the early age of seven, the Spartan child was initiated into disciplinary exercises of a severe character. At that age he came under the charge of the *παιδονόμος*; this official was, in conformance with the direction of Lykourgos, one of the best citizens; he was expected to discipline the youth in all the exercises that were so nicely adapted to develop the Spartan citizen, and to teach him all the cunning and courage that would afterwards be required in his service of the state.

In Attica a far different pedagogical scheme presents itself. When children reached a proper age, the training of mothers and nurses was succeeded by that of the school; hither they were conducted each day by the παιδαγωγός, a special slave whose duty it was not only to conduct the children to and from school, but also to supervise their deportment.

In the Athenian school, gymnastics (γυμναστική) was not by any means the sole course of training. The curriculum in fact included three distinct courses:

(1) γραμματική.
(2) μουσική.
(3) γυμναστική.

Under γραμματική were included reading and writing, to which were added after the 4th century B. C. elementary geometry, arithmetic and drawing.

When the child was able to read and write with facility, he entered on the course called μουσική, which embraced the study of poetry and music. Passages from Homer, Hesiod, Theognis, Phokylides, and Solon, and from many lyric poets, were read and committed to memory. Xenophon mentions in his Symposium (*Symp.* iii, 5) a certain Nikeratos who had committed to memory the whole of both the Iliad and the Odyssey. The boys were also taught to chant the poems they had learned to the accompaniment of the lyre. Much stress was laid on the moral effects of music.

But from no system of Greek education was γυμναστική, the careful and systematic development of the young body excluded. Nor did this training cease in mature years; when young men left the palæstra, they found awaiting them the gymnasium,—an institution that was adapted to social as well as athletic purposes.

Nor did any Greek philosopher, as might, perhaps, be expected, ever dream of dropping γυμναστική from his ideal scheme. In the Laws of Plato there is a detailed discussion of the education of children, and the plan is therein advocated of restricting the education of boys to gymnastics until their tenth year; the regular study of letters was not to begin until after the body had been made sound. Aristotle also maintained that gymnastic training should precede as well as accompany that of the mind.

Enough has been said to show that the Hellenic ideal of manhood was not the mere scholar and subtle thinker, but the naked athlete with firm flesh and swelling muscle. It may be asserted that the mass of their young men reached during the best age of Greek history a stage of physical perfection which has never been attained in any other age or country. This is attested by thousands of statues of victorious athletes, not only in Olympia but throughout Greece. Although the Greeks had no cricket or football they had on the other hand a far greater variety of games than we have, and this variety made for the symmetrical development of the body. The athletic sports of Greece remained great and respected until excessive training and extreme specialization brought ruin to them; that is, when a boxer devoted all his time to boxing, and a wrestler to wrestling at the expense of a harmonious development of the body. The influence of the old Greek games upon sculpture, painting and poetry, as well as upon athletics, will continue to keep alive for centuries to come the ideal of a sound body for a sound mind.

HEREDITY AND ENVIRONMENT; A STUDY IN ADOLESCENCE.*

EDGAR JAMES SWIFT.

RECENT investigation on the effect of suggestion has opened new lines of thought concerning the relative influence of heredity and environment. The results gotten from statistics can never be conclusive. Too many factors whose value cannot be accurately estimated enter into life. The experimental method is only possible, unfortunately, under limitations that greatly lessen its scientific value. The families best qualified to train children are rarely willing to receive those of distinctly bad ancestry, while humanity and the feeling of responsibility to childhood will never permit children of good parentage to be placed in vicious families for the sake of learning the effect of surroundings. The statistical method is valuable, however, in correcting or strengthening conclusions arrived at theoretically, and in suggesting possible lines of research.

The first part of this investigation consists of answers to questions from about 200 boys in the reformatory at Waukesha, Wisconsin. The attitude of the boys toward the investigation was such as to encourage the belief that their replies were as accurate as their knowledge would permit. In order, however, to test their sincerity questions were inserted concerning which not many of them could be expected to have much information. If boys intend to deceive they are not likely to discriminate between that about which they have knowledge and that of which they know nothing. They try to deceive consistently and so pretend to knowledge when they have none. The history book of the institution was also consulted for the same purpose.

The physical condition of children is a partial test of the vigor of their ancestors. 84.76 per cent were in good health. 12 said their health was fair, and as most of these had little or nothing the matter with them, it does not seem unreasonable to class half of them with those in good health. If we do this the percentage rises to 87.61. So far as this indicates the physical vigor of their families it is not seriously against them. The Elmira Reformatory reports 90.4 per cent of its inmates in good health at the time of admission, and only 3.7 per cent diseased.

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*Read before the Section of Child Study of the National Educational Association, Washington, D. C., July 11, 1898.

If we turn from the physical condition of the boys to their mental ability we find 30.45 per cent good, 41.62 per cent fair, and 27.91 per cent poor. This estimate was made for each inmate by the teachers of the several classes. At Elmira, again, 75.8 per cent of the 7,168 young men who have been in the institution, were of good ability, while only 1.2 per cent were regarded as deficient. The difference between these results may be partly due to the fact that the estimate of the Waukesha boys was based almost wholly on ability as shown in school work, while at Elmira the opportunity for judgment is considerably enlarged.

Of the boys 28.35 per cent have lost their father and 31.03 per cent their mother. This is rather a large proportion. Morrison found that 20 per cent of the industrial school population of England and Scotland were fatherless and 14 per cent motherless. The large number of motherless children found by this investigation may be accounted for either by the father's desire to remarry leading him to wish to be rid of his children or by trouble with the stepmother. This seems to be indicated by the fact that 22.5 per cent of all the children have stepmothers, while only 15.53 per cent have stepfathers. The danger to young children, if either parent remarries becomes evident when we see that 30.43 per cent of these boys report unkind treatment by their stepparent.

Morrison* thinks that the large number of reformatory children who have lost one or both parents is evidence "of a degenerate race either on the father's or the mother's side." The inference that these children are more inclined to crime does not seem to be warranted.

Partially orphaned children of wage-earners gravitate to the reformatory quite regardless of criminal proclivities. If fatherless, they are a burden to the mother who has difficulty in supporting them, and if motherless, the father finds them an obstacle to remarrying. In both cases they are left to themselves, while the parent is away from home at work, and so they become incorrigible through street life.

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*Juvenile Offenders, p. 100.

Insanity was found in the ancestry of 4.6 per cent; epilepsy in 5.68 per cent and 6.13 per cent reported chorea. In only four instances did two of these three nervous diseases appear in the same family line. One boy reported a death from nervous prostration and consumption. Either insanity, epilepsy or chorea was traced in the ancestry of 13.82 per cent.

10.47 per cent are of ancestry in which at least one has been convicted of crime, while 7.48 per cent said that their father had been convicted. If we include in the estimate those who had never been convicted so far as their sons knew, the percentage falls to 6.96. In either case it is large and indicated the surroundings in which the boys grew up as well as the tendencies bequeathed to them. The offenses of which they were convicted indicate, in most cases, general worthlessness rather than criminality. They were usually drunkenness or disorderly conduct. One, however, was convicted of murder, one of trying to shoot a man and one of robbery. The mothers of 2 out of 179 had been before a criminal court.

So far as could be learned from the boys their fathers were, in almost all cases, hardworking men, 125 were skilled workmen, 46 unskilled and 33 were farmers. Only 5 did not work, and 2 were saloon keepers. When asked about the character of their fathers, 86.33 per cent said they were good men, 11 per cent thought them bad, and 2.65 per cent fair. This estimate is probably not far from correct. It shows a moral discernment in the boys that goes deeper than arrest and conviction, since it exceeds the number of those against whom a crime had been proven. Ill-treatment by the parents does not appear to have greatly influenced this estimate. These boys seem to have regarded this as natural, if not as a privilege.

Drunkenness in their ancestry was admitted by 37.32 per cent. The parents seem to have been generally meant here, as the same question asked about them later gave practically the same result. It is interesting to note that of the 81 boys, one or both of whose parents or ancestors were hard drinkers, 52 did not themselves drink, while of the 136 whose parents and ancestors did not drink, 31 reported that they were accustomed to drink either whiskey or beer or both. It is not easy to explain this on the supposition that youthful delinquency is the result of debilitated nerve centres brought about by ancestral alcoholism and disease. But, if boyhood crimes originate in a longing for excitement which finds its gratification in crime because a healthier outlet for these feelings is not at hand, the results found here are not so difficult to understand. Intemperance would, then, follow crime rather than precede it, and this has been found to be true.* In any case it leaves a large number of delinquents to be accounted for in some other way. At the Elmira Reformatory over 50 per cent are of temperate ancestry.

If we consider all who were included in this investigation, 34 out of 217 had learned to drink whiskey, while 59 in 218 drank beer. Of the 54 who gave the age at which they began to drink, 18 commenced at ten years of age or younger, and 30 between 10 and 15, while 3 said "very young." Only 3 were older than 15 years; 9 did not know the age.

The influence of others is seen in the way in which they began to drink. Fourteen became accustomed to its use at home, or were given it elsewhere by their father or some other member of the family; 18 were urged to drink by older boys, 1 was working in a brewery, 2 wanted to see how it tasted, 1 was selling papers in a saloon, 2 drank because they saw others do it, 3 "for fun," 2 at a party, 1 was paid by a man to drink, 3 thought they felt a desire for liquor and 14 did not remember how they began.

The best and worst part of a child's education comes to him unconsciously. He acts out its suggestions before his judgment is mature enough to be critical. Only 24 had read any books that were not harmful and many of these were valueless. They were merely not bad. 35 had read none at all, 29 all kinds, and 12 said good books, but were unable to name any. Most of the books belonged to the class of the James Boys, Diamond Dick and detective stories. There seems to be force in Dr. Ferona's assertion that "three fourths of those who enter prison have been led to a life of crime from neglect of education." Moral ideas are rare among these boys, but there is no evidence of a prevailing absence of the moral sense. Few of them glory in what they have done. 127 said that they would have preferred to spend their evenings in a free clubroom playing games, had there been such a place where they lived. 3 admitted they liked the saloon better, and 13 would rather have remained at home. When asked whether they would like to be such a man as their father, 138 replied yes, while 58 wanted to be better.

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*Morrison's Juvenile Offenders, p. 10.

The children of wage-earners in towns and cities, the class from which reformatories are constantly replenished, are, to a large extent, deprived of the stimulus of social respectability. Besides, they do not receive the same treatment as those socially higher. It is rare for any one who can win their admiration and arouse them to personal effort for improvement to associate with them, at least in any other than a patronizing way. No one took enough interest in 20 of those who drank to advise them to stop, while only 6 of the remaining 41 reported being urged not to drink by any one outside of their family. 54 had never seen or heard of any one whom they greatly admired. Of those who said that they had, 54 gave some member of their own family, 28 Washington, while 25 were scattered, and 42 were unable to name any one.

Almost all of the boys had lived the greater part of the time on the street. They were under the influence of associates older in crime. 124 said they had never felt any desire to do wrong, but were led on by others and wanted some fun. Of the remaining 14 who replied, 11 believed that they alone were responsible for what they did, while 3 were not able to give an opinion.

The question of interest to society is not, Can children become criminals because of inherited tendencies? but rather, Must these constitutional peculiarities reveal themselves in the life of the individual, however unfavorable to their development the surroundings may be? The record of 106 children, who had been placed in families by the Minnesota State School for neglected and dependent children, was examined in the hope of getting some information on this subject. The history book of the institution showed that one or both of the parents of all these children were distinctly bad. The least of which any of them had been guilty was habitual drunkenness and desertion of their family. In 39 instances intemperance, insanity, or criminality was found in both parents and 39 of the mothers were known to be prostitutes. The fathers of 2 had been convicted of murder, and 3 were serving a sentence in the penitentiary. This is certainly a good ancestry to produce criminals, if the effect of heredity is beyond control. The children whose record is given here include all those on the books of the institution, who were more than 17 years of age when last investigated by the State agent, and whose parents, one or both, were known to be bad. All but 16 of them were older than 18 years. 52 of these children were classed by the State agent as excellent, 36 as good, and 18 as bad. Those designated as excellent were so strong in character and ability as to attract unusual attention, while by good was meant above reproach in character. One of those recorded as bad was a prostitute before entering the school. 83.02 per cent, then, of all those of known bad parentage developed into young men and women of good character when placed in better surroundings.

At the Wisconsin State School the record of 91 children was studied. The same rules of procedure were followed as before, except that a few between the ages of 16 and 17 were admitted. Both parents of 19 children were either intemperate or insane, or had committed a crime, and 13 of the mothers were prostitutes. In this school 12 were classed as excellent, 73 as good and only 6 had turned out badly. One of these 6, it was found, had been placed with a man who was a hard drinker, although this was not known when the boy was given to him. Another, one of the younger girls, was seduced by the man in whose family she was placed. The small number of these that did not turn out well, compared with those from the Minnesota school, is probably due to the fact that many of them are younger. It is quite possible that some may still revert, though inherited characteristics usually appear in full strength by 16 years of age.

When it is remembered that these children remained with their parents long enough to imbibe a good deal of immorality by contact, the significance of these figures greatly increases. Besides, the children are placed under an indenture contract and, except in rare instances, are treated as servants by those who take them. They are usually valued in proportion to the work they can do.

The average age at which 255 boys were taken to the Waukesha Reform School was not quite 13.7 years. This is the time when the largest amount of energy is seeking occupation and wise guidance is particularly needed. Yet this is exactly what these boys do not get. They are left to the chance of the street. At this period of life the nerve tissue is in a hyper-irritable state and, as Clouston* tells us, certain forms of emotional and irrational wilfulness, immorality, impulsiveness and adolescent insanity are not uncommon. Escapades at this time do not necessarily point to a criminal nature. The excessive irritability of the nerve centres, to which the frequency of nervous disorders at this period points, makes them erratically sensitive. At this age children are especially susceptible to suggestion.

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*The Neurosis of Development, p. 12.

The acts for which many of the boys were sent to the reformatory seem to have been a sort of reflex resistance to dull or disagreeable conditions of life, a blind effort to escape from a hateful monotony. The history book shows that the common offences were disobedience, running away from home or school and stealing articles of little or no value, such as candy, tobacco, knives or small amounts of money. The wish to have some fun was the prevailing motive with many. In comparatively few instances did the things that they took have much value, and most of these were articles which boys long for. They were generally bicycles, watches and guns. Only 6 boys out of 254 stole money in excess of $5.00.

A sudden change comes in the early years of adolescence and with it new demands. Energy is in excess and the childish sports which formerly absorbed it no longer satisfy. Early education consists to a large degree in meeting and overcoming inherited nomadic and anti-social impulses. The lawless acts of this period are probably the result of surviving rudimentary traits*

The successful control of these ancestral tendencies is the most difficult task of child-training. If opportunity is given children to engage in enjoyable sports, exciting enough to satisfy their boundless imagination, and if school work is so planned as to respond to their varying interests, these rudimentary impulses may gradually be eliminated from their life. These reformatory boys were not only left to the unrestrained influence of these ancestral traits but, in addition, the surroundings were such as to favor their abnormal development. The entire absence of the moral sense in hardened criminals, resulting in practical reversion and the redevelopment of those activities that are ordinarily rudimentary in the human race, is probably due, in many cases, to the environment reviving their latent power of functioning.

Infancy and childhood is a transition period from lesser to greater brain complexity. If conditions are favorable this complexity is in the direction of greater intellectual and moral perfection. New cell connections are now being made and the associations thus established determine the character of the man. It is probable that most of these connections are made unconsciously. Daily contact with associated ideas and acts will end in establishing them in the mental background, however unnatural they may be. Natural and reasonable are relative terms. Their interpretation depends on the paths that have been made among the cells during their expansions from infancy through adolescence, when development followed, uncritically, the lines suggested by experience. The complexity that characterizes a developed brain is not a spontaneous growth. Though mental limitations and possibilities lie within the brain itself the direction that these possibilities shall take, resulting finally in pro-social aspirations or in anti-social tendencies, is determined from without. Criminal training may end in as complex cerebral associations as the best education. Enlarged mentality is the result of life amid broad social relations. The subjective possibility for character is actualized only under the influence of perfecting social stimuli. Moral obtuseness is not necessarily the result of native incapacity. It is more often due to constant exercise in perverted perceptions. Under the action of external stimuli modifications are constantly going on in a child's brain. The form that these modifications take will depend on the relations found in experience. The child accepts relations as they are offered, and the ideas thus related form his standard for future judgment. The immediate value of an idea depends on responsive associations and these are determined by the relations prevailing in the mental background. Hasty action will be common unless there are arresting secondary associations of sufficient strength to hold the mind in balance until their full meaning can assert itself. The greater the number of these secondary associations the more deliberate and reasonable will be the final decision. The relations resulting from constant contact with vicious surroundings account for much of the moral perversion that leads to thoughtless action and later to crime.

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*Ellis, Pedagogical Seminary, October, 1897, p. 188.

It is doubtful whether in three-fourths of the cases criminal tendencies are anything else than a convenient name with which to cover our social failure in education. If, as Morgan tells us, we have good grounds for believing that "the growth of intelligent plasticity, in any given race, is associated with a disintegration of the instinctive plan, congenital adaptation being superseded by an accommodation of a more individualistic type, to meet the needs of a more varied and complex environment,"* and if "a suitable training long enough continued can to a certain extent derange the heredity tendencies which we call instinctive, and create new ones,"† heredity loses the charm of necessity and society with its power to control environment becomes responsible.

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*Nature, February 3, 1898, p. 328.

†Charles Letourneau, Popular Science Monthly, February, 1898.

PLAY IN PHYSICAL EDUCATION.*

G. E. JOHNSON.

Play as a factor in education is prehistoric; it antedates Adam. It is not known how low in the scale of animal life play occurs, or to what extent, but reliable authorities attribute play to animals no higher in the scale than the insecta. Groos classifies the swarming of insects in the sunshine as Bewegungspiele. Sir John Lubbock, in "Ants, Bees and Wasps," speaks of the games of ants. He says: "Our countryman, Gould, noticed certain 'amusements' or 'sportive exercises' which he had observed among ants. Huber, also, mentions scenes which he had witnessed on the hills, and which he says, 'I dare not qualify with the title gymnastic, although they bear a close resemblance to scenes of that kind.' The ants raised themselves on their hind legs, caressed each other with their antennæ, engaged in mock combats, and almost seemed to be playing hide and seek." Romanes speaks of the love antics of spiders, as Darwin does of birds; but Forel, who corroborates the observation of Huber, says that the attraction of the sexes could not have been the cause of the play of the ants.

Dr. Hodge called my attention to the curious antics of bees which he had sometimes observed, a kind of ecstatic dance, which suggest, in a way, the capers of a well-fed calf or of young lambs.

Probably there is no such thing as play among animals which necessarily devote their lives to the search of food; but with well-fed leisure appears the phenomenon of play. This fact doubtless influenced the theory, so widely accepted, that play arises from surplus energy. Anabolism being complete, and there being no necessity for the discharge in serious pursuits, the over-filled cells are discharged in mock purposes, or play.

This theory, which may be termed the Schiller-Spencer theory, is regarded by Groos, the author of Die Spiele der Thiere, as of great worth, but insufficient. Play, in both animals and man, is often carried to fatigue, or even exhaustion, in which case the over-supply theory is inadequate. Play has its root in something deeper than momentary physical condition; it is more than physiological, it is biological; it is an instinct with the deepest biological significance. (This explanation of play which has been wrought out so elaborately in the remarkable study by Groos, has been most admirably presented by Dr. George W. Fitz, in the American Physical Education Review, Vol. II, No. 4, December, 1897.)

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*Read before the Section of Physical Education of the National Education Association, Washington, D. C., July 11, 1898.

The belief that play activity has its root in instinct, is by no means novel. Professor James, in his chapter on instinct, catalogues what seem to him to be the most prominent of the tendencies which are instinctive in the human species, and in the list is play. In 1877, John Strachan, a physician of Edinburgh, issued a little book in which he endeavors to show that play is instinctive, and that it is nature's method of preparation for mature life, claiming that play activity, alone, is sufficient for the highest development of all the faculties, mental or physical. It has been the part of Groos to classify the play activities of animals and to trace each class to the instinct on which it is based.

That play is a preparation for future serious occupations is evident to the observer of kittens or young dogs. What cat could catch a mouse if it had not previously been trained in its play to crouch, creep stealthily, judge of distance, gauge its leap, and strike with its claws? The instinct of hunting in the lion or tiger would be of little use when prey was near if there had been no previous exercise in play of all the arts required in hunting. Animals play, says Groos, not because they are young; rather, they have a period of youth because they need to play.

The preparatory value of play is strikingly manifest in the games of savages. The games of the Teton-Dakota children, described by Dorsey, exercise the young Indians in the very temper of mind and powers of body needed in their maturity. The boys imitate the sun-dance, cutting holes in their skirts instead of the flesh; they leap from high stumps or banks; play hide and seek among the trees; take captives, fighting roughly, but without anger; follow each other's trails in the snow or sand; make bows and arrows, and hunt with them; fight mud-battles, in which they throw mud-balls from the ends of sticks, sometimes injuring each other severely; and play many other games of warlike nature, often causing much pain to the players and imposing tests of courage, strength and endurance. The young Ute Indians acquire much skill in making their toys; the boys, bows and arrows, the girls, dolls and pottery.

Granting the instinctive biological significance of play, it is not surprising that play should powerfully affect the vital processes. There is a wide difference between the effect of uninteresting exercise or work upon the development of a child and the effect of hearty play, which perhaps involves the same muscles. Not alone on the muscular, but equally on the nervous system, play has its effect. Dr. Irving C. Rosse, in the Boston Medical Journal, October, 1895, writes on the Conservative Value of the Play Impulse. Dr. Rosse claims that in some forms of play is one of the best treatments of certain forms of nervous diseases. Chorea and hysteria, he says, have been cured by a course in swimming. Dr. Hartwell mentions the value of play with gymnastics in the prevention and cure of stuttering. "On account of their joyous, refreshing influence" says Raydt, "the place of games cannot be filled by gymnastics."

I have no thought of opposing play to gymnastics. Play is properly one department of physical education. What we need is a greater facility for and a more thoughtful use of play in the education of our children. From the nursery to the university, the play of the child, the youth, and the young man, is worthy of the most careful consideration of a consolidated committee of ten and of fifteen. The play of the kindergarten, if it does not need a complete overhauling, at least should be more carefully considered in view of the possibility of that need; the play of the schools between the kindergarten and the college is scarcely given a thought by any one; and the play of the college runs riot. I do not need to speak to you of the loss we incur, on the physical side, from any neglect of play; the magnificent results achieved by the Greeks through play, the temper and physique of English youth, developed on the playground, are proof enough of the value of play in physical education. Nor do I need to mention the mental and moral effect of play; all this has been done, far better than I could do it, in writings you all have doubtless read, notably those of Inspector Hughes. But before passing, I wish to speak of one matter of importance. It is this:

The industrial and social conditions have greatly changed in the last half century, especially in New England. The marked tendency today, is toward urbanization. Seventy per cent of the people of my own State (Massachusetts) live in cities. Opportunities for play, such as were universal in the early days of Massachusetts, are not now offered perhaps to one-half of her children. No public school question is without its social import, and we cannot afford to leave out of our consideration the social side of play in education. I believe we are encountering a mighty danger in the lack of adequate motor and will training in the case of our city children, and especially in the case of the children of the city poor. G. Stanley Hall says that it is the tendency of modern psychology to reduce most of the activities of the soul to some form of the will, and quotes Schopenhauer that the normal man is two-thirds will, one-third intellect; Robertson, that *doing* is an essential organ of knowing; Matthew Arnold, that conduct is three-fourths of life; Maudsley, that both character and history are written in the habits of muscles; physiologists, that a large percentage of all the energy of the body is used up in muscle work, nearly half the body by weight consisting of tissues contracting under volitional control. Ask any public school teacher how much time she gives a day primarily to the developing of the intellect and how much primarily to will-training, and what will be her answer? And yet "it can be easily shown," says Dr. Hall, "that the will is no less dependent on the culture it receives than the intellect. It is fast becoming as absurd to suppose men can survive the great practical strain to which our life subjects all who would succeed, if the will is left to take its doubtful chances of training and discipline, as to suppose the mind develops in neglect." Could a more suggestive word, or indeed a more timely warning be uttered? At an age when boys formerly received will-training in the work of the farm, in hoeing, mowing, raking, in odd jobs, making sleds, and repairs of every description; when girls once received a training of hand and will in housework of every sort, in quilting, sewing, spinning, we now get our city children to using the "insignificant muscles which move to the scribbling pen or wag the tongue." We seat children in chairs screwed fast to the floor and command them to *think* when we ought to give them space for moving and set them to *doing*. This need of muscle culture in great cities, especially, is an imperative one. "The greatest need of an individual or a nation," says Seguin, "is muscular power." And there is nothing else in the wide world, I believe, that could insure the brain and the brawn and the will of our future citizens as could the play of children. Our compulsory school laws keep our children in school five hours a day and forty weeks in the year, thinking, thinking, always thinking, never *doing*. They come in crowds too unwieldy for play. They stand around, they jostle, they push; they loaf at the corners of the street, or shop windows, a thousand, thousand movements of cars, horses, people, catch their eyes and attention, each to retain them but an instant and then they are gone, preventing any continuous, persistent exercise of willed action or attention; in short, their play interests drivel and dwindle away, as it were, and with them, most precious moments of childhood and possibilities of growth toward perfected manhood. I believe there is possible for every stage of childhood an activity earnest, serious, absorbing, an activity with a conscious inner ideal toward which the child may ever be looking. I should like to know the man who first called idle, senseless play "fooling." I think he must have been a philosopher. This "fooling" in children is suggestive of some physical vigor, but of a minimum of cerebral activity, and is, I believe, a reaction from the forced and uninteresting study we impose on boys. The Lord made it annoying to us, I could believe, that we might arouse ourselves once in a while to a wiser attention to children, as a matter of personal comfort, if nothing more. Did you ever see a young child, a two-year-old, "fooling"? How seriously, earnestly, absorbingly so young a child attends to his play! One might almost imagine he thought a world hung expectant on the outcome of what he was doing. Alas! it is only after boys get to school that they go to "fooling."

Speaking of the inner ideal in true play, leads me to observe that it is this ideal that makes all the difference in the world in the child's activity and its value. With this ideal vivid enough in the child's mind he becomes self-directing in his activity, a living soul, not an animate machine. He grows from within, outward, unfolds like the bud to full blossom, not by a plastering on of this or that from without. The difference is as great as that between moulding in solid gold and veneering in gilt. And here we need a warning. It is very hard to draw the line perfectly between wisely and unwisely directed play. The kindergarten is at fault, I fear, in not allowing enough originality to the child. I am told that kindergarten children often need more direction and suggestion in their play at home than they did before. May it not be that the kindergartens give over-amount of attention to games as compared to free play? It is the positive, self-directing and self-sustaining activity of play that is so efficient in will-training. What is it that every great man has done? He has conceived for himself an ideal, and he has pursued it with all the strength of mind and soul and body. So with a child at play; he conceives his own ideal, whether it be a mud-pie or a game of tag, and he follows it with all his might. Muscular power developed in the pursuit of an ideal, that is what is needed more than all else in physical education. City playgrounds and the play of city children are questions of national importance.

Not long since the editor of an excellent educational paper, in an editorial, deplored the fact that so much discussion was given to play as a factor in education without first defining the terms "play" and "work." No doubt he was right and I have delayed too long in this paper to state what seems to me to be play. Play, in a sense, is not distinct from work; play involves work. As Dr. Brinton says, the measure of the value of play is the amount of work there is in it, and I might add, as he does, in regard to children at least, that the measure of the value of work is the amount of play there is in it.

The boy who is building a hut in the woods and the girl who is making a dress for her doll are working with all their might, but are nevertheless at play, acting from "inner necessity and impulse"; and from tendencies which are clearly instinctive. Moreover, it is the glory of play, that it may not only prepare for future serious occupations, but does actually in some rare and happy cases, develop into a life work. Art belongs to play, and he who paints or chisels or writes because he must, is only following out a play impulse into and through maturity. It is serious now, and for that reason, and for dignity sake, perhaps, should be termed work rather than play.

Again, play is more than an interesting exercise, and because an occupation is pleasurable, or even "fun," it is not necessarily play. Real child-play is based on some instinctive tendency, and has, on the part of the player, no serious and other than the immediate pleasure of the act; it has always the element of "inner necessity and impulse."

For school children should be chosen so far as possible the games which are based on instinctive tendencies. Taking the list given by Professor James, we can base upon it some general classes of games.

I. Based on hunting instinct.
  1. Games of chase; *e. g.*, games of tag.
  2. Games of searching or hunting; *e. g.*, hide and seek.
  3. Games of hurling or throwing; *e. g.*, quoits.

II. Based on fighting instinct.
  1. Games of contest; *e. g.*, foot-ball.

III. Based on instinct of emulation.
  1. Games of emulation; *e. g.*, racing.

There are other instincts on which play activities are based but activities which do not necessarily appear in games. I distinguish between play and games. Play is the general term and includes games; but psychologically and pedagogically, we may distinguish clearly between the two. Games are formal, play is informal. Games require two or more players; play may be wholly individual. In games there is prominent the idea of beating, winning; in play emulation may not be at all apparent. Educationally, play is a broader field than games, richer in information, executive power and originality. Games give quickness, deftness, intensity, a high power of coördination as in what is commonly termed skill; play gives breadth, culture, grace and high power of coördination as in artistic creations.

On the instinct of imitation is based an endless variety of plays, *e. g.*, keeping house, playing school; on constructiveness, playing with tools, making toys, huts, dams; on the caring or tending instinct, pets, dolls; on acquisitiveness, collections. The physical training teacher can join hands with the manual training teacher, with the teacher of nature study, and the regular teacher, and pour all these activities on to do the work of education. We have been trying this very experiment with a few boys in Andover.*

*** This work was not done in connection with regular school work, but was carried on under the generous support of the Andover Guild and the enthusiastic and efficient management of Mr. Clarence S. Moore, the sloyd teacher employed by the Guild.**

Of about thirty boys, along the line of toys and games, one made skees; three, bows and arrows; four, peggies and peggy sticks; two, jumping standards; one, bicycle stand; two, fish-line winders; four, swing seat; seven, boat; two, cart; three, wind-mill; along the line of nature study and collections, one made a stand and frame for ants' nest; one, a cage for toads; six, aquaria; twenty, butterfly net; twenty-one, tadpole net; one, vivarium; for their homes, two made pigeon-holes; two, book-case; one, foot-stool. When we consider that the boys played with the toys they made, that they stocked their aquaria, hunted butterflies and caught tadpoles with their nets, found occupants for their cages and nests and watched and cared for them, we see that the amount of physical training involved is by no means inconsiderable. Play (as distinct from games) is not often emphasized in physical education, but it is of great importance. I am not sure that the finest specimens of physical manhood could be developed through games, but rather through play, toys and activities allied to hunting, fishing, rowing, tramping. Yet we need both and we can have both. If such work should be taken up in connection with regular school work, it would not only avail much for the physical welfare of our school children, but would equally serve the mental and moral natures, and go far toward making that much-needed connection between the school life of today and the out-of-school and home life of our children.

Hampered as so many of us are by city environment and other disadvantages, we can nevertheless take suggestions, I believe, from the free, old-fashioned plays of children; the making of mud-cakes and dolls' dresses, sand-pile farms and miniature roads, tiny dams and water-wheels, whittled-out toys, sleds, and dog-harnesses, the flying of kites, the pressing of leaves, gathering stones, collecting stamps and butterflies, and hope that some day the Lord will show us a substitute or find a way for all children to be blessed by membership in that school to which, as Maurice Thompson has said, the greatest philosophers, scientists, artists, poets of the world of all ages have shown their gratitude and indebtedness, the school from which the greatest thinkers have been graduated, the school of the woods, the fields, the hills, the streams, the out-door play-school of childhood and youth.

To recapitulate: Play activity is rooted in instinct. It is a law of life, obedience to which prepares for the serious occupations of maturity. As a generator and conservator of nervous energy it surpasses all other forms of exercise. As a character builder, it produces strength and positiveness of will. It is especially needed in the education of the children of the city poor. Play should follow deep-seated and well-defined hereditary tendencies of the human species. Not only games, but what may be termed, in distinction, play, should be utilized.

THE EDUCATION OF CRIPPLED CHILDREN.*

It has been said that it is a false humanitarianism, which makes much of the weak and deformed, and it is undoubtedly true that it is to the strong and the healthy that the world looks for leadership, and that sentimentality may not always be wisdom. Li Hung Chang states that our civilization errs in placing too much stress on charity and too little on justice. Civilization, however, owes it to itself to care for its cripples not only as a Christian duty, but in a sense of strict justice. For it is due to our ignorance, or our neglect of the proper sanitary laws that the ravages of tuberculosis (the most potent causes of cripplehood) are so great, and the community which fails to protect satisfactorily should charge itself with the consequences of its neglect. Even the prehistoric North American Indian, as has been shown by indisputable evidence (Peabody Museum), cared for his cripples. and any nation which claims to give a fair chance of happiness to its citizens should charge itself especially with the care of the unfortunate; looking at the question from this point of view it can hardly be said that full justice is done to the crippled in our communities.

It is the proper pride of every self-respecting family to cherish and care for its own and to provide that none ever become a state charge, and tenderness and kindness is lavished upon their shut-in lives, till they are often injured by too great attention, and the Tiny Tims become too often the petty tyrants of a cramped environment; but where there is no family to protect and care, the crippled become the serfs of the almshouse, a tax on the community, a burden to others, and a source of misery to themselves. Those who are distressingly distorted sometimes gain a precarious livelihood by the brutalizing exhibition of their physical defects.

It is the Scandinavians who have first organized a means of freeing the cripple from a position of absolute dependency, and the plan so well carried out in Copenhagen and Christiania should attract careful attention. We in America, who claim to be a practical people, should not only copy but attempt to improve on the original design.

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*The following papers on the Education of Cripples, etc., were read before the Boston Physical Education Society, February 29, 1898.

It may be estimated that in a community of a million inhabitants, are to be found, apart from the insane, blind or feebleminded, at least 10,000 individuals, either entirely prevented from bread-winning, or seriously handicapped in the struggle for work.

These, it will be borne in mind, are not mentally deficient or maimed in their senses or intellect; they simply are unable to hunt for employment, they are unskilled, untrained, and there is no adequate means of educating and training them or finding employment for them, even if their parents attempt to do so.

It is, however, conceivable that not only could this army of unemployed be made independent, but that by a proper adjustment of economic conditions they become by their disability better fitted to do certain sedentary work than the more active. It would be necessary that they may be trained to what they are especially capable of doing.

It is to be remembered that those who live shut-in lives and whose lives are not utterly crushed by pain and suffering, frequently develop unusual refinement, delicacy, clearness of intelligence and patience. If these qualities are developed and marketed, they can be made of great use to the community.

That there is a need with us of skilled individual manual work is clear to any one who visits a Japanese museum, or even looks at a hand-colored Japanese photograph. We, who are the great electricians and the iron and steel workers of the world, who utilize machinery to such an extent that hand labor has become almost a lost vocation, give to the world products which in perfection seem a marvel, but have we not lost in the rush of our civilization the infinite patience, the wonderful skill in handicraft to be seen in a Japanese bronze, a piece of carved ivory, a kakemono? It is possible that by training and utilizing this neglected contingent in our midst, some good can be developed toward the production of the finest, most finished work estimated by its excellence, not by the rapidity or time of the production.

This can, however, only be accomplished by an organized charity similar to that first started in Copenhagen, and begun so successfully in Boston.

E. H. BRADFORD.

THE COMPENSATORY EDUCATION OF CRIPPLES.

By compensatory education for deformed children is meant any special training which will make amends for their physical shortcomings and convert little cripples into men and women better fitted in some one direction to cope with the fellow-man in the struggle for life.

Many an invalid child, crippled by diseases of the spine or hip, has grown up to be either an idle burden to his family, or to become an inmate of the almshouse. It is only in a few places that any attempt is made to teach the deformed to shift for themselves and earn what they can for their daily bread. This is a limited view to take of their education. There should be three sides to every one's education, mental, physical and industrial; yet many of the homes and schools for cripples today confine their attention to one side only. No class of children are more likely to be benefited by careful physical training than those left with a weak, shriveled leg or arm as the result of infantile paralysis or chronic joint disease. That careful and systematic muscular training does much to render such limbs capable of performing a large part of their function has been demonstrated in the school for cripples in Bavaria. Development of function in a crippled limb helps the general health, the ultimate capabilities for work of the individual, and consequently his self-reliance and his self-respect.

Let us see what is done for the compensatory education of cripples, and for the first example turn to Copenhagen, Denmark.

In 1861, a Lutheran clergyman, impressed with the necessity for helping the crippled, interested himself in teaching a few boys and young men basket-making and shoe-making; the work was begun through his unaided endeavors; shoes and baskets were sold and soon a small society was formed to take charge of the work—the Society for Cripples and Invalids. Today this society provides a small hospital and a large dispensary, an out-patient clinic, a trade-school, and a workship where graduates of the trade-school living in Copenhagen obtain work.

According to the by-laws "the aid of the Society is due to every cripple or invalid in Denmark who needs and is worthy of help; provided that the applicant is not receiving state aid or has not received it for two years." "The purpose is to help the patients in the very best way, furnishing free medical treatment and proper bandages, splints, crutches, and shoes for deformed feet." "The society tries by its instruction at the manual and industrial school to enable the patients to support themselves. It also finds employment in good trades (factories), shops, etc."

For the year 1895 the following figures show the numbers attending the school:

January 1, 1895—Number of pupils		74
Number added during the year		39
Total		113
Discharged—To workshop	4	
Left or were unfit to learn a trade	6	
Graduated	10	20
Remaining December 31, 1895		93

The sort of cripples treated is shown by the following summary:

Paralytics	177
Loss of a hand or a portion thereof	77
Otherwise crippled	119
Total	373

The workshop employed 35 resident graduates, six of whom were also teachers in the school department. They are paid for piece work, the shop retaining a certain percentage of the price and the rest going to the workman.

The following trades are taught at the school and followed in the shop.

For men and boys:

1. Cabinet making.
3. Basket making.
3. Wood carving.
4. Turning in wood.
5. Shoe making.
6. Brush making.

For women and girls:

1. Hand weaving.
2. Plain needlework.
3. Dress making.

In Sweden, Norway and Finland there are four schools, of which the principal one is at Christiania. The instruction is very similar to that given at Copenhagen; several of the teachers studied and taught at the Copenhagen school. They have been especially fortunate in devising mechanical appliances to enable paralytics to hold their tools and materials and work with their teeth, and some of the work done absolutely without hands is wonderful. One girl without hands could weave a very beautifully patterned cloth of several colors; she could also do embroidery with her teeth. The pupils are largely composed of young adults with extensive congenital malformations or with deformities due to paralysis.

The report of the Royal Bavarian Central Institute for training and educating crippled children, states that this charity was founded fifty-four years ago, through the counsel of a benevolent man, by the act of King Ludwig the First. It aspires to give to its pupils a religious and moral training, systematic instruction in the schoolrooms, orthopædic treatment, including the wearing of mechanical apparatus, improvement of the general health by nourishing food and a carefully regulated living, and by gradual, progressive, technical instruction to fit the pupils for some trade or congenial employment.

"Until recently this institute was the only one of the sort in Germany." "It is gratifying to know that Her Majesty, Queen Carola of Saxony has founded a similar Home for Cripples in Dresden; it opened November 4, 1896, with eight pupils." "Experience has shown that many more crippled children are able to become tailors than joiners (carpenters and cabinet makers), and a number of pupils who had learned cabinet making returned later to learn tailoring." Orthopædic appliances are given to some of the children. Graduates of the Institute sometimes receive aid either in the form of occasional gifts of money, in buying articles or securing a market for them, or tools and materials may be given by the Institute in return for work done. Among those receiving aid the following trades were noted: one shoemaker, two seamstresses, one bookbinder's apprentice, one copying clerk, one apprentice to a portfolio maker, one apprentice to a brush maker. During the past year no graduates had offered their work there for sale, but four had paid for their tools and orthopædic apparatus in work.

The school contained 43 boys and 36 girls in 1897, suffering from the following deformities:

Spinal disease (caries)	4
Lateral curvature of spine	9
Hip disease	11
White swelling of knee	8
Disease of ankle	1
Disease of shoulder	1
Disease of elbow	2
Loss of arm, forearm or fingers	13
Loss of thigh, leg or foot	5
Infantile paralysis	20

The following teachers are employed: one general superintendent and inspector; two schoolmasters, each teaching two divisions; an instructor for fancy work in paper, leather work and deportment; one Catholic and one Protestant teacher of religion; one teacher of practical tailoring; one assistant instructor in the workshop; one teacher of the elementary class; one teacher of sewing and embroidery.

Out of 67 applicants 40 were rejected and 27 new scholars admitted; the average age of admission is 12 1-3 years.

In the day school the studies for four years are as follows: German, arithmetic, geography, history, natural history, penmanship and singing.

A special division for bookkeepers and clerks includes penmanship, rapid writing, business handwriting, stenography and law.

A special division for drawing consists of two classes for boys and two classes for girls.

Gymnastic instruction is divided into four classes: class A, for boys with two good arms; class B, for boys with two good legs; class C, for girls with two good arms; class D, for girls with two good legs.

The trade department has the following classes. For boys—two classes.

Class 1.—Cutting and gluing different materials; book binding; paper box making; making portfolios; leather work.

Class 2.—Practical lessons in stitching, machine stitching, cutting and tailoring.

For girls there are three classes: the first two classes have kniitting, crocheting, white sewing and marking; the third class mending and darning, finishing, machine sewing, and making of garments.

In the workshop many and various articles were made. The book binders bound 742 volumes and 550 pamphlets, besides copy books, drawing books, charts, etc.; photographs were mounted, envelopes made, likewise pasteboard boxes of various sorts and numerous fancy articles.

The leather workers produced cases for opera glasses, needles, keys, combs, plaster, matches, cartridges, spectacles, visiting cards, coins, knife and fork cases, cases for gloves, sewing materials, cigar-cases, photograph frames, purses, chatelaine bags, portemonnaies, bags, large and small, and trunks of all kinds.

The cabinet makers made zither cases, trays, tables, book shelves, manicure cases, cigarette cases, doll furniture, washstand, picture frames, clothes tree, mirrors, caskets, trunks of various sorts to be covered.

The tailoring class made one full suit of man's clothes, one jacket, two pairs of trousers, and many repairs.

The knitting class, sewing class and crochet class did creditable work.

Like the Scandinavian schools it is essentially a trade school and the hours given to manual training exceed those spent in the school room.

It differs from the Swedish and Danish schools in requiring of all applicants that they be capable of such use of the hands as is necessary to do the work required in the Institute. All stay three years; this term may be shortened or lengthened.

In Milan, Turin and in several Italian cities there are large institutions teaching both day scholars and boarders, and providing for medical treatment, where they treat rickets, and also crippled and disabled children of all sorts. The Milan Institute has spacious buildings where the children are bathed, fed and taught; they receive the best of medical care and excellent instruction in gymnastics. Many are brought from their homes every morning and returned at night in large coaches, and the Institution is extremely popular with all classes.

In England there are several institutions for industrial training of cripples, of which Woolsthorpe House, Kensington, London, is an example. The National Industrial Home for Crippled Boys, as it is called, "receives for three years, boards, clothes and educates on Christian principles, destitute, neglected, or ill-used, crippled boys, not under thirteen years of age nor over eighteen, and teaches them a trade, for an annual payment of ten pounds and also a single payment of six pounds, sixteen shillings fourpence, for outfit." Applicants for admission answer through their patron this question: "Does the boy's condition give a reasonable prospect that he will become self-supporting after being taught one of the following trades, viz., carpentering, relief stamping and copper plate printing, saddlery and harness making, tailoring?"

In 1894 there were 88 boys in the home and there were two deaths in the home. Twenty-six boys graduated in 1894, after their three years' training, of whom twenty-one were in good situations and earning their living at trades; two were at home seeking situations; one had a situation obtained for him but did not keep it; one was at work though not following his trade; one was too feeble to work.

Physical education is only developed by means of foot-ball, cricket, and out-door games dear to English boys; the cricket eleven had won five matches out of six. Industrial education is one of the main pivots on which the whole work of the Institution hinges. Failure in capacity to learn a trade means a failure in the work of life; therefore the success of the Institution depends on the ability of boys to earn their own living after they leave the Home.

The boys spend the whole day working in company with skilled carpenters, harness makers, stampers and tailors and have one hour of school in the evening from seven to eight. It is not surprising that the number of articles made in a year is considerable. According to the report the carpenters made 27 tables, 73 articles of furniture, 27 stools, 735 panels prepared for carving, and repaired 7 tables, 180 chairs, 303 sundry articles.

The harness makers made 34 sets of harness, 103 breeching straps, 27 backbands and traces, 4 pair driving reins, 41 head collars and reins, 11 pair shaft tugs, 110 dress baskets, trunks, portemanteau and bags, 450 repairs to harness.

Stampers received 3,349 orders; stamped 1,971 reams of paper; 456,540 envelopes, 88,500 correspondence cards; 99,000 visiting cards.

Tailors—For customers: 53 coats, 58 vests, 81 pair trousers, 9 overcoats, 1,806 repairs. For the Home: 121 coats, 121 vests, 139 pair trousers, 33 overcoats, 1,298 repairs.

This work was accomplished in one year by 88 boys under a head master and an assistant master, assisted by carpenters, harness makers, stampers and tailors.

Until lately no attempt was made in this country to give a bread-and-butter education to the deformed. Homes had been built in many places and in some of these a kindergarten teacher employed, as for example, "The Daisy Field's Home and Hospital for Crippled Children" at Engelwood, New Jersey, where the teacher has been established three years; the children are taught to wash and iron their doll's clothes, sew, make cake, candy, canned fruit, pickles and preserves. Some of the children of seven or eight are in the second and third reader and can write well. At the Home of St. Giles, the Cripple, near Philadelphia, basket making and carpentering are taught. At the New York Orthopædic Hospital, two school teachers are now employed to keep the inmates up in their lessons. At the Hospital for Ruptured and Crippled in New York, there is a regular day school. An industrial school is in successful operation in Milwaukee. In 1894 the Industrial School for Crippled and Deformed Children was begun in Boston on a small scale and as an experiment. The large number of applicants now waiting to be admitted shows how little it has supplied the demand in this community. Instruction is given to 39 scholars, both boys and girls, in the following industrial branches: for girls, sewing, knitting, dressmaking, millinery, typesetting; for boys, carpentering, sloyd and printing; this is in addition to the regular school work of the grammar school. Little by little, new industrial branches are developed and are worked out in experimental cases. For instance, one big boy was taught leather stitching at the machine shop in the Children's Hospital last year; he is now earning his own living. The school hopes for a class in leather work for boys before long. The girls seem to have more industrial work than the boys; this is due to the scarcity of boys in the early days of the school; also because many of the boys are still too young to be given a trade education.

The general plan of instruction differs essentially from the Danish or English institutions. It is a day-school, not a boarding-school. The founders were unwilling to shut children up on account of the coddling influence of institutions whereby the child learns to rely on others rather than on its own efforts. The children were so backward that much time had to be given to lessons; the school room claimed most of their time; the workshop the remainder—almost an hour and a half or two hours—whereas English boys at Woolsthorpe work all day and study one hour at night.

In some respects the Boston school approaches more nearly the methods of the Norwegian, although the latter is purely a technical or trade school. The school at Christiania is a day school; unlike the American method, however, the pupils pay for their tuition or it is paid for by the charity of towns or individuals. They have found it necessary to provide lodgings for poor pupils coming from a distance; a separate society does this, called the Society for Assisting Cripples; it owns a boarding house opposite the school house and many pupils live there. It is probable that this will be necessary some day in Boston. Nevertheless, the good work goes on and on, and the sincere and ever growing interest of both teachers and pupils gives pleasing testimony of progress in the right direction, while the spirit of confidence and self-reliance which grows up in the lives of those who graduate and become self-supporting, gives fresh courage to teachers and scholars alike, wherever an attempt is made to raise the imprisoned lives of the deformed by compensatory education. The need of special education for the deformed is as great as it is for the blind, the deaf and the feeble-minded.

AUGUSTUS THORNDIKE.

INDUSTRIAL SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN.

THE great and crying need for such a charity as that of the Industrial School for Crippled and Deformed Children was seen by our physicians in their rounds in the hospitals, and among the dwellings of the poor. Crippled children dismissed from the hospitals, and unable by reason of physical disability to attend the public schools, grew up in ignorance, far removed from the advantages of instruction, and sadly in need of the gentle care and attention which their physical condition required. So great is the lack of care among the poor and ignorant that many of these convalescents returned to the hospitals within a few weeks in far worse condition than that in which they had at first been admitted. In many families where the cripples were as well cared for physically as the circumstances would allow, the minds received no education or even change, for the poor little invalids were often shut within one or two rooms for weeks together. They were perhaps strong enough to go out, but if both parents were away at work all day, the other children of the family at school, when these returned at night it would be too late to take the invalids out of doors. There are at present in the school two boys of about eight years of age. The mother of one supports her three children by scrubbing the floors of offices. She goes to work at four o'clock each morning, returning at ten in the forenoon. In the afternoon she works at the scrubbing from four until eight or nine. The little cripple and his younger sister are dependent on a brother of twelve to get the breakfast and dress them for school, and put them to bed at night. The children are usually asleep when the mother leaves home, and in bed, when she returns at night. One of the school visitors found the other pupil in bed one Saturday morning. The room presented a dreary appearance. The shades were down as the family had left before light. There was no fire, as they dared not leave one for fear of accident. The little eight-year-old was in bed to keep warm. He seemed quite used to the situation and patiently waited through the long day for the return of the family at night.

Many of the cripples were spoiled by over-indulgence and neglect. They rose when they pleased in the morning, ate what and when they pleased, and retired whenever they felt inclined. As one may readily see, these children grew listless and even morbid, and their chances of recovery were greatly lessened.

Such neglected children may and do become, as they develop, a dangerous element in society. By their very ignorance and by the neglect they have suffered, they join the ranks of beggars, and worse than beggars, who prey on those who have failed to give them the chance for education, and self support, which is their due.

The idea of a school originated with Dr. E. H. Bradford, orthopædic surgeon at the Children's Hospital. Dr. Eliot Brackett and Dr. Augustus Thorndike joined heartily in the idea, and so interested men and women in Boston that papers were drawn up in April, 1894, incorporating the Industrial School for Crippled and Deformed Children. So far as is known, this is the first school of the kind incorporated in this country, and the only one existing here today. In the European countries there are several such schools. Italy has a large institution at Milan, one also at Turin, and one at Bologna. Denmark has, at Copenhagen, an industrial school for the congenitally crippled. This was started some years ago, by a Lutheran clergyman, who devoted many years to the perfecting of a system of education for those who were born without hands, or otherwise crippled. This system has spread through the cities of Norway, Sweden and Finland. The schools are in some cases aided by the State, though originally by private charities. Germany has a school for cripples at Munich, supported (I should judge from its report) partly by the State, partly by subscription. There are at least two schools in London, one for the industrial training of crippled boys, and one for crippled girls. The board schools in England also make provision for the instruction of the physically deficient, but there is reason to believe that the instruction in these schools is not at all as thorough as the work done on the continent.

At the time the papers were drawn up incorporating the Boston school, the fact was noted in the newspapers. A day or two later a postman brought a letter to the Children's Hospital, addressed "School for Crippled Children, Boston." The postman had no knowledge of such a school, but thought the letter might be intended for the hospital. Dr. Bradford was away and the letter was given to Dr. Augustus Thorndike. It proved to be from Mr. Fleischer, a gentleman from Christiania, who was visiting in this country, and had seen the notice of the incorporation in the newspapers. He wrote to say that he and his daughters had in Christiania a school for cripples, and that if he could be of any assistance to the school about to be started in Boston, he gladly offered his services. Dr. Thorndike at once called upon him, and invited him to speak at his house on an afternoon following. A card of invitation was printed in the papers inviting all interested in the subject to be present. Although it was in the middle of summer, enough persons were present to fill the rooms and Mr. Fleischer deeply interested his audience in the account of the school started by his two daughters, one of them a cripple herself. From a small beginning their school had grown until it had accomplished marvelous results. Their pupils were educated in common school studies, in music, and in various branches of industrial work. Borrowing their methods from the Copenhagen school, they had taught their pupils without arms to weave, and to embroider, using the feet and teeth instead of hands and arms. He exhibited many products of industrial work accomplished by these unfortunates.

So great was the interest aroused by Mr. Fleischer that it was decided to open the Boston school in the following October, that of 1894. Rev. Mr. Kidner of St. Andrews church offered, at this meeting, the use of rooms at St. Andrew's Hall, Chambers Street, rent free, for the year. This offer was gladly accepted, and October 1 found eleven little invalids at the schoolroom eagerly watching to see what was to be done with them. The teacher was almost as much in the dark as they, for the pinched little faces and disabled bodies appealed strongly to her feelings, and brought fear to her heart of what might be the result of overwork in any direction. But the surgeons were always ready with advice as to the amount of work each should receive, and the children themselves soon proved that there were straight enough minds in the poor little bodies, with plenty of courage to bear the infirmities, and a hearty good-will to enter into any work that would bring them more in touch with the lives of normal brothers and sisters and friends. Indeed this desire to be as others are is as strong in these children as in older persons. Children are shy of expressing deep feeling, and it is not often that this is consciously shown, but when a child says, with a sigh of satisfaction, "We are doing just what the public schools are doing," or "My sister has the same work that I am doing here," it shows how the little minds are working, and how they have felt the great difference between their lives and those of healthy children. So far as is possible, the children are treated as though they were healthy children, and just so far as they can help themselves, they are allowed to do so.

The first year twenty-four children entered the school, but all of these did not remain. Nine of them came from Arlington, from Mrs. Wheeler's Home. These nine were taken as an experiment, but the daily trip was found to be too much for them, and they were withdrawn. A teacher was found who would instruct them at the Home. This class is a branch of the Boston school.

The school day was divided as follows, and as it proved a safe and practical division, no great change has been made for the past four years.

The children arrive at nine and leave at four. From nine to twelve lessons, with recesses at ten-fifteen and eleven. Dinner and recess from twelve to one. Lessons again from one to one-thirty for primary children and from one till two for grammar classes. Primary classes rest and recess from one-thirty till two-forty-five; grammar classes rest and recess from two till two-forty-five. From two-forty-five till three-forty-five, industrial work. Some older and stronger pupils have industrial work from two till three-forty-five on certain days. In lessons the school ranks with an ungraded school. The first year there was but one teacher, and the classes corresponded to third and sixth class grammar, and third class primary. The second year a primary teacher was engaged to take charge of the younger children. This, the fourth year of the school, there are thirty-nine children in the various classes, fifteen in the two primary classes and twenty-four in the three grammar grades.

The question of food was a most important one. Complete recovery of many of the convalescents depends largely on rest and proper food, and many of these children while belonging to families where enough was earned to buy proper food, on account of the ignorance or indulgence of the parents were fed upon anything but what would make good bone and muscle. "A good plain dinner" was the order given when the school started, and that has been the rule. Meat, soup or fish, potato with one other vegetable, bread and butter in quantity, and pudding or fruit, either fresh or stewed, for dessert, form the menu. At the first morning recess a mug of milk is served to each child as some have no appetite for breakfast, and others may not have been given anything for that meal but tea and bread, or a cake in the hand. In some cases an egg is given with the milk. It has been very interesting to the teachers to watch the effect of the wholesome food upon new pupils. Usually at the end of a week cheeks begin to show pink, and a few days later a rounder outline, spirits rise, and, as the new of school wears off, the poor, listless, quite angelic, little invalid really shows signs of mischief and childish faults. These signs are noted with interest by the teachers for they usually mean a quickened mind as well as an invigorated body. When a child enters the school he is examined by the physicians in charge for that month, and special rest and diet are prescribed if necessary. Some of the children do not need rest during the day—others must lie down for one-half hour or one hour each day. The children in the school may be divided into two groups; the chronic cases, whose diseases may be arrested, but who will always be crippled, and the convalescents, who will one day be quite cured. As soon as a child is cured he leaves the school and enters the public schools.

In October, 1895, the school moved to a house on Turner Street, near Massachusetts Avenue. In 1896 this house proved too small so a change was made to the present quarters of the school, 424 Newbury Street. This house is already taxed to accommodate the number admitted this year, and there is a long list of children asking for admission.

The development of the industrial work has necessarily been slow owing first to the difficulty of adapting work to the ages and infirmities of the children, second to the feeling of the Committee that the work must progress slowly in order to be well done, and third to the expense attending the introduction of each new branch of industrial work. The industrial classes this year are as follows: Dressmaking and millinery, once per week; sewing, twice per week; sloyd carpentering, once per week; knitting, once per week; printing and typesetting, to some pupils every day, to others twice per week. Four older pupils from outside attend the printing classes. Lessons in typewriting are given to a boy without arms. This boy attends the public schools, and is well up in his studies. He has three fingers on one shoulder and his teacher had taught him to write with these. It was thought by physicians that he could be taught to use his feet in many ways in place of hands; and a beginning was made by teaching the use of the typewriter. He now writes, with his toes, as creditable a letter as any boy of his age—ten years—could write with his fingers. The sewing and knitting classes are taught by ladies who generously volunteer their services. The paid working force of the school this year consists of two teachers, a housekeeper and assistant, a janitor who is also printing teacher, a teacher of dressmaking, one of millinery, one of sloyd and a trained nurse.

The nurse comes each afternoon for two hours. Her duty is to look after all apparatus worn by the children, and see that it is kept in order, to apply dressings and bandages, and to bathe and rub the backs and limbs. Most of the children are out patients at the hospitals and go to those places for treatment. The nurse and the physician visiting the school merely see that the apparatus is in order and the wounds properly dressed.

The children are brought to the school in a coach and three carriages hired from the Armstrong Transfer Company. One or two pupils come by cars. The coach brings children from South Boston and a district near Dover Street, one carriage goes to the South End, one to the West End, and one to Roxbury. This drive of one-half hour or more is most beneficial to the children. The service is most efficient, and the drivers very gentle and patient with the children, who are very fond of them and often call on the teachers to settle disputes as to the merits of their favorites.

The officers of the school for the ensuing year are: President, Mr. Augustus Hemenway; Vice-President, Mr. Arthur A. Carey; Treasurer, Mr. E. Pierson Beebe; Secretary, Mr. Joseph S. Bigelow.

The school is yet too few in years to look for many results. Perhaps the most that can be claimed in this direction is the improvement in the health of the children now in its classes, the pleasure it brings into lives otherwise full of pain and loneliness, and the growing intelligence of little minds starved by neglect. But some children have left the school cured, and have taken places with children of their own ages in the public schools. One girl of eighteen was able to earn fair wages in a brush factory, two others entered dressmakers' shop, and when seen last were looking strong and well, showing their lameness only in a slight degree. One boy who was given lessons in leather work has secured a place with good wages with a harnessmaker.

Thus this school has started, and is trying to carry out its purpose—the education and special training of crippled and deformed children, so that they may be able in some measure to make up the loss caused by years of suffering, and may be fitted to fill a place in the great world of workers.

Mary M. Perry.

TRANSPORTATION AND RELIEF WORK OF THE INDUSTRIAL SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN.

WHEN the school was first started in October, 1894, the Committee then in charge employed one of Armstrong Transfer Company's coaches to call at the homes of the children, attending the school, every day, except Saturdays. The coach arrived at the school at 9 o'clock and called again at 4 to return them to their homes. Soon after the beginning of the second year the number of children had so largely increased that the Transportation Committee found it necessary to have more conveyances, so a carriage from the West End was added, which a friend kindly paid for that year, and one from the South End, the coach covering the South Boston route and intermediate points. This arrangement provided transportation for 25 children, and one child, who was able to pay her fares, coming in the cars, made the number at the School that year, 26. As many of the children lived far apart, and the fund was not sufficient to pay for each one to be called for, it was found necessary to establish one or more stations on these three routes, where some of the children could be called for and left. The same company furnished the means of transportation that year. A few months after the school opened for the third year it was again found necessary to add to the number of conveyances, in order to accommodate the increased number of children. February 8, 1897, the Roxbury carriage was started, and the route of the West End carriage was lengthened. This furnished transportation for 35 children, and one child coming in the cars made 36 the limit of the school that year. In the fall of '97, when the School was opened for the fourth year, it was decided to increase the limit to 40. The Transportation Committee found they could arrange to transport this number by allotting 16 children to the coach, and 7 to each of the three carriages and there were three children who could come in the cars, for whom the Executive Committee voted to allow car fares. So far this term this arrangement has worked most satisfactorily. If a child has to be sent to the Children's Hospital for a few weeks, or is ill at home, one of the children who is coming in the cars is put into the absent one's place in a carriage, thereby saving the car fare. At present this is being done with two of the three children who generally come in the cars, as there is one child in the hospital, and one place vacant in the Grammar Room. This does not mean that there is no waiting list, because there is one with the names of 27 applicants on it, but they are all for the Primary Room. This list is constantly being added to, but the Primary Room has all it can accommodate. The last remaining place in the Grammar Room seems a most difficult one to fill; several applicants who are old enough for this room have lost so much schooling through sickness that they are not far enough advanced in their lessons to keep up with the others. Out of all the children attending the school since it opened this term there are but three who have not missed a day at school. One of these is a girl on crutches who has come most of the time in the cars and even tried to come in the bad storm of Tuesday, February 1. These three children are rightfully proud of their records. The Transportation Committee has not, as yet, found any one who will do better for the school than the Armstrong Transfer Company.

It would interest any one greatly who was at the school some day at 4 o'clock, when the children are leaving for home, to see how careful all four drivers are in carrying the children. One of this Committee, when traveling in Italy a year ago, visited the Institute for Rickets at Milan with a view to gaining some suggestions about the matter of transportation, but there, also, the method employed was an omnibus belonging to a regular company. The cost of living is so much less in Italy than here that no comparison of prices can be made. At Milan the omnibus company furnished the wagons at a much cheaper rate, of course, than is possible here. It has been suggested to the Trustees of the School that it might be better to have a building where most of the children could be kept from Monday morning to Saturday morning, when they would be returned home for Sunday, so that the parents would not shift all the responsibility on the School. This would save money on transportation which could be devoted to the extra expense of providing for the children during the week.

Another reason why this plan seemed better to some was this— the Relief Committee, which is composed of 14 ladies and a secretary, often finds that the children have not sufficient, or proper food at home. Each lady on the Committee has a certain number of children in her charge, whom she visits at their homes, where she also sees the parents, and she also sees them frequently in school. One child was found to be so poorly this winter that she was half starved and had to be sent to the Children's Hospital for about six weeks. When she came out the Medical Committee asked the Relief Committee to provide medicine, and a quart of milk each day at her home, as the parents' cannot afford it. Consequently, these things are now paid for by the Relief Fund, which is connected with the Committee. There is another family that is being helped to get coal and provisions. There are many cases where the parents do not give the children proper food, because they do not take enough interest in them, so it seemed as if the children would gain great bodily comfort and strength if some boarding-school plan, like the above, could be adopted, but the Trustees are unwilling at present to change the character of the school into that of a home. They think it best to follow the present plan and have the School remain where it is until the matter can be studied into a little more closely and a solution for the difficulties found. The Relief Committee also helps in other ways with the Relief Fund. It is used in cases of sickness and in helping the parents to pay for apparatus for their children when they cannot afford the whole amount themselves. The Committee also has a clothes closet at the School, to which kind friends know they can send old clothes, and if the ladies find that any of their charges need warmer clothing, and their parents are too poor to buy them, they are procured from the closet. Often the teacher will see that a child needs warmer clothing, so she consults with her Relief visitor,' who is sometimes able to get the parents to procure what is necessary.

A little over a year ago a boy 23 years old was enrolled on the ledger of the School. He was a cripple in the Charlestown Almshouse and was brought to the notice of some of the doctors. They had him taught leather work in the shop at the Children's Hospital, and he is now in the trade, earning $9.00 per week. He feels very proud of his work and of his success. A boy of 16, extensively paralyzed by a broken spine, has just been entered on the ledger. It is impossible to transport him in any way, but as he is very anxious to learn geography, grammar, and arithmetic endeavors are being made to find a teacher who will go to him two or three times a week to teach him these branches. Two young ladies from the Art School have been visiting him and giving him lessons in painting, for which he shows a good deal of talent, and our school now sends a paid teacher twice a week to give him regular lessons in painting. The armless boy is another case on the ledger. He is 11 years old and attends the Public School. His teacher says he is very bright. He has been having lessons on the typewriter, which he is learning to operate with his toes. His teacher reported the other day that he has improved very much during the past term. He also learns certain exercises for his toes, feet and legs, in order to make them as supple as possible. His latest accomplishment is to play Rosa McGrady with his toes on a toy piano. He is now having his lessons at the Industrial School for Crippled and Deformed Children, 424 Newbury Street.

FRANCOIS J. COTTING, Secretary,
Relief and Transportation Committee.

THE OBJECT, MEANS, DIFFICULTIES AND SUCCESSES IN INTRODUCING PHYSICAL EDUCATION INTO THE PUBLIC SCHOOLS OF THE BOROUGHS OF MANHATTAN AND THE BRONX, NEW YORK CITY.*

M. AUGUSTA REQUA.

THE object in introducing Physical Education into the Boroughs of Manhattan and the Bronx was twofold; first, physical perfection; second, a special training of physical powers, or in other words, health, strength, grace and skill.

The means that were employed were the appointing of two specialists and the employment of such exercises as would bring about most thoroughly the desired object.

In the Boroughs of Manhattan and the Bronx Physical Education had formed a part of the course of study for years, but it was not until the fall of 1896, when two supervisors, M. Augusta Requa, M.D. and Sophie J. Nicolai, were appointed that a uniform system of exercises was introduced throughout all the schools. These two supervisors adopted the following plan for giving instruction in Physical Education to the teachers. The plan was similar to that employed in London and Brooklyn.

The boroughs were divided into sections and delegates from all the schools assembled at centres in those sections and received instruction from the supervisors. The method of instruction was an easy lesson, copies of which with explanatory notes were distributed to the delegates. The delegates taught the teachers and gave them the lesson and notes to copy. The teachers then taught the same lesson to their classes. By these means a lesson each week was carried into every class room. As both teachers and scholars were untrained, it was necessary to begin with the most elementary work. The exercises were of a very simple character, and as all must start from the beginning, the introductory lessons served for all grades. These lessons contained the elements of Physical Education, *i. e.*, (1) Correct positions of the body in standing and sitting, (2) the simplest exercises so given as to aid in securing these correct positions, while at the same time the body is taught to obey the will, (3) the simplest exercises to aid in securcuring ease and grace, (4) respiratory exercises both for hygienic reasons and also as a basis of voice culture.

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*Read before the Physical Education Society of New York and vicinity, January, 1898.

With regard to the character of the exercises no one system was deemed complete in itself, and each system should be so employed as to retain its distinctive features. If, therefore, a correction could be made the result would be a combining of all the various distinctive exercises, methods and means that aid in physical perfection.

As in architecture, so in body building, the starting point is the straight line. In body-building this straight line is the body itself, brought as nearly as possible into the vertical straight line. No system of exercises so emphasizes accuracy of movements from the vertical to the horizontal and to the slanting positions as the Educational Gymnastics of Ling. It therefore logically forms the basis. The distinctive features of this system are its Day's Order and the great accuracy of execution of the exercises which it brings about by its explanations and method of giving commands. This system might be called the system of the straight line. Again as in architecture, so in body-building we need more than straight lines. So graceful, rhythmic exercises, exercises in the carriage of the body as studied from the standpoint of deportment, and the culture of the voice are all necessary for physical perfection.

In addition to the above, gymnastic ability or skill such as climbing, vaulting, jumping, etc., which is found in both Swedish and German, American Gymnastics should be taught.

The above have been the considerations which have lead the writer to adopt the Educational Gymnastics of Ling to form the basis and at the same time the means of correlation of all that is desirable in physical exercises. The system then in use in the public schools of the Boroughs of Manhattan and the Bronx might be described as the Educational Gymnastics of Ling with amplifications. The following is the amended Day's Order:

AMENDED GYMNASTIC DAY'S ORDER.

INTRODUCTORY EXERCISES
- Deportment.
- Order movements.
- Introductory movements.
- Freeing or relaxing movements.

GENERAL
- Arch-flexions.
- Heaving movements.
- Balance movements.

SPECIAL
- Shoulder-blade movements.
- Abdominal exercises.
- Lateral trunk movements.

Marching, double-quick, running.

GENERAL
- Slow leg movements.
- Leaping, jumping, vaulting, gymnastic games.
- Æsthetic exercises, exercises with light apparatus with music.
- Voice building.
- Respiratory exercises.

Some one may ask, Have we time in our public schools for so many exercises? The answer is "yes," but necessarily there can only be very few of any one kind. However, much can be accomplished even with our limited facilities.

The difficulties encountered have been mostly those of time, environment, and large numbers. The crowded curriculum in our schools allows too little time for the demands of this subject. With regard to the environment, most of the work is done in the class room, an undesirable place for exercising. The greatest difficulties to be encountered in the class room are those of lack of space and proper ventilation. When we consider that the exercises are primarily given to improve the circulation so that nutriment and oxygen are carried to all parts of the body,when by investigation we learn how difficult it is to have good ventilation even under the most improved advantages, and when we know that a well aired room only is desirable for indoor work, we feel that the class room falls short of the requirements.

The large numbers in the public schools of the boroughs of

Manhattan and the Bronx form a problem in every department of education, of which those who do not have to deal with it, have not the faintest conception. In many of the schools there are from two to three thousand children. The average attendance is about 200,000. The Boroughs of Manhattan and the Bronx are making great strides in matters of education, both mental and physical. They have already twelve finely equipped gymnasia in the elementary schools, and each new school building that is erected is provided with a gymnasium and more space than formerly is allowed for open-air playgrounds. In each of the high schools and in the normal college there is a gymnasium and a trained teacher.

The minor difficulties have been due to a lack of understanding of the aims of physical education. The teaching of the theories and principles of gymnastics has not yet been advisable; and this has proved somewhat of an hindrance, although a slight one. Without a knowledge of the aims of physical education and the principles upon which we must proceed, there is sometimes found a tendency to consider the appearance or prettiness of the exercise and not its effect, also to give undue value to size of muscles, and to overrate the importance of anthropometry; again, to regard the use of apparatus as necessary to health and strength.

The successes have been most gratifying. The magnificent discipline in our public schools has enabled the work to be easily introduced. It is now taught in every class room in these boroughs. Every gymnasium is being used.

The hearty coöperation of the borough board of education, of the board of superintendents, of the principals and teachers, is making a success of the work.

DISCUSSION OF DR. REQUA'S PAPER.*

MISS JESSIE H. BANCROFT.

In the first place I am impressed with the breadth of Dr. Requa's outlook over her subject. It seems to me that only from such a broad grasp of its possibilities in many directions can come a selection of the most necessary objects in views, or of the best means of attaining them. Indeed, I would take issue with Dr. Requa for going too far and holding to an object too large and comprehensive for school facilities. Her object she states to be, "Physical perfection and special training of physical power; the cultivation of health, strength, grace and skill."

This, one could hardly dispute, is a noble ideal for physical education as a whole, but I would submit that it is not practical for the conditions of public school work, where the time is limited to 15 or 20 minutes a day, five days in the week, and the daily lesson must be given by the class teacher. I contend that with these limitations physical training will do well if it can successfully combat the conditions of school life that tend to physical deterioration, in other words, if it can help the physique to maintain a *normal* standard. While to do this it must be *truly educational*, developing physiological and psychological powers that would otherwise be repressed or lying dormant, I regard its work as chiefly defensive or combative, rather than aggressive, in its character.

To make this more definite, physical perfection, which the doctor holds as her ideal includes, as she says, the symmetrical development of the muscles, and of muscular strength and power. That perfection is something which I do not think can be achieved in fifteen minutes of class room exercise five days out of seven, under a teacher who is not a specialist, or even under one who is. In my own efforts I stop short in the line of muscular development at the point where muscular tone or elasticity, especially of the relaxed extensors of the back, is resorted to, and maintained at a condition where erect carriage and correct posture may be secured. To round out the contour of the muscles beyond this point, or to cultivate their strength for the lifting of any considerable weight, is, to my mind, impracticable, if not impossible under the circumstances.

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*Read before the Physical Education Society of New York and vicinity, January, 1898.

An analogous limitation I would apply to the cultivation of grace. Such grace as comes from erect carriage and from the free use and voluntary control of the body I know is wholly practicable to expect; but my experience leads me to believe that there is not time—to mention only one obstacle—for the use of methods whose direct and special object is the cultivation of grace, or "exercise according to the laws of beauty." By this I assume that the doctor means, as I do, the employment of principles of rhythmic motion, of opposition, of relaxation, etc. All of these things, the development of grace and of muscular power and size, are undeniably essential to a complete physical education; but I maintain the conservative position that a complete physical education is not possible under the school conditions. Such a large ideal must be trimmed down, in my opinion, to a smaller standard which is practicable and possible under the circumstances. This is done in all other subjects in the school curriculum and I see no reason why physical training should attempt to do more in less time than they do. In elementary schools, which include the primary and grammar departments, we do not seek to give a child a complete education in each branch of arithmetic upon which he touches; we seek, rather, to give him so much of a knowledge of each of the main processes as shall serve his practical, daily needs, and awaken and develop his reasoning powers to a point where he will *want* to use them for his own advancement as his life gives him the opportunity, either in institutions of higher learning, or outside of school. In reading, it is not attempted in the elementary schools to give the pupil a complete idea of literature in any of its branches, but rather again to equip him with what shall meet the practical daily needs of his life and arouse a love of literature that shall carry him farther than the schools can undertake to do. The same thing applies to other specialties in the school. In drawing it is not attempted to make an artist of the child, but to arouse his artistic powers to the point where they shall be self-active, and where his love of the beautiful will lead him to the enjoyment and appreciation of art; in sewing we do not teach the girls to make gowns, but rather to handle the needle for neat seaming, hemming, etc., which they may apply to more elaborate construction later.

In brief, why should we attempt to accomplish in physical education in the elementary schools what in other branches is left for the secondary or higher institutions, or not attempted at all?

That so large an ideal or object is impracticable becomes more apparent, I think, when one considers definitely the means of putting it into execution. For instance, in the proposed gymnastic day's order outlined, while the majority of the exercises are taken, I infer, according to the Swedish method of command, the programme includes also relaxing exercises, æsthetic exercises and those with light apparatus and music, each one of which calls for a radically different method of handling the body on the part of the pupil and of commanding the class on the part of the teacher. I would liken it to the speaking of several different languages. Each uses the organs of respiration and articulation, but each uses them in a different way. I started out in my public school work with very much the same ideas that Dr. Requa has elaborated, at least in so far as to think that I could use in unmodified form the different methods of command and response required by the Swedish, German and æsthetic modes of exercise. I very soon found that it was a mountainous task to get the teachers to master one method of command, and that the simplest that could be found consistent with the psychological training involved was the best. Nor do I think that the class teacher should be required to master more than this with all else that she has to accomplish. Her work should be made as light as possible.

As regarded the children, I found that only the most essential needs must be selected for attack, and the form of exercise must be such as to reach those needs in the most direct manner and with the utmost economy of time. I did not find that directness or economy to inhere in the Swedish form of command. In brief, I had to eliminate from my plan of work many things which Dr. Requa includes. It is, of course, possible that Dr. Requa may be able to achieve them. I was not. We do stimulate the general physiological functions, in what seems to me a more effective way than by that of the Swedish form of command; we do correct the posture with the implied improvement in muscular tone; and we do train some of the fundamental psychological powers; but we leave it to higher educational institutions or to out-of-school opportunities, to work directly upon the development of grace, relaxation, or any considerable degree of muscular power.

I agree heartily with Dr. Requa in a desire for free floor space and a rebellion against work in the class room. We hope in time to utilize our assembly rooms, basements and, in fair weather, the yard areas, for light apparatus work in every alternate grade. I doubt, however, if the necessity for class room work will ever be done away with in the majority of our city schools. The difficulty of ventilation in the class room, I have found, can be overcome by having the children march through the aisles and around the room at the beginning of the lesson. This gives opportunity to open the windows without danger of taking cold, and by its disturbance of the air, facilitates its interchange with that from without.

That human nature is pretty generally the same is shown by the same tendency among the teachers of the Borough of Brooklyn that Dr. Requa finds among those of the Borough of Manhattan, "to look upon the externals of the work instead of its results, —to see the exercise and not its effect." It would appear that in this respect physical training is going through the same phases of development that has characterized the teaching of other branches. The old pedagogy measured the child's gain by the amount which his memory could reel off by rote. It mistook remembering for knowing, and the external mask for the development of power. Similarly in physical training the tendency to look upon the number or variety of exercises as something in itself desirable, rather than as a means to the definite training of specific powers, is something from which physical trainers themselves are only just emerging. Indeed this is perhaps one of the most essential differences between the two best known systems of work. It is therefore not surprising that the class teachers should make progress slowly toward a fuller realization of the possibilities of the work they are using. Such an enlightenment is most earnestly to be desired, and it seems to me that no greater work lies ahead of those of us who are engaged in public school work in particular, than to impress those engaged in other lines of school work with the fact that the subject is a truly educational one, and that the same principles of psychology and pedagogy that apply to their other teaching apply to the physical exercise.

USE OF THE VOICE IN TEACHING.*

DELIA M. ELLIOTT.

EVERY one knows the tremendous power of a great singer, but the influence the human voice exerts in *speaking* is apt to be underestimated.

The quality of a voice is one of the best indicators of the disposition, and not an unsafe guide in judging character. One can, by the proper modulation of the voice, quiet a noisy group, or arouse a sluggish one. We all know the peculiarly irritating effect of a high pitched voice, the cutting, rasping, effect of a sharp, angry one, and the controlling effect of a clear calm tone. Try the soothing effect of a low tone upon an excited, high-voiced companion; a conversation carried on in this way will gradually find the pleasant level of an even, quiet tone—it is the adjustment of over-intensity to moderation; and in the process, the *spirit* of calmness has triumphed over the spirit of turbulence, and by means of that powerful little instrument, the human voice.

Knowing, then, the susceptibility of this power, ought not more attention to be given, not only to the development of it, but to the careful use of it as a force of example and of control among gymnastic teachers?

In any gymnasium where class work is carried on *gymnastic commands* in some form are necessary for the sake of uniformity and discipline. In order to accomplish any sort of good work with the class, it is necessary that the teacher should first have her class under control and that the pupils should, to a certain degree, be aware of this control. The degree to which the pupil should be made conscious of the control will differ with the temperament of individual, and of the behavior of the class at different times.

In giving commands, a teacher has various ends in view, and the nature and tone of command will depend upon these ends. I have gone into gymnasia where, for the entire hour, the commands were loud, energetic, peremptory, severely unrelenting and continuous. I recall one lesson of the kind where the class was small; the room not large; the members, hard-working women, who during the day had been in the nervous rush of city business life; yet, who, through the entire hour, were subjected to unrelenting, arbitrary commands; and, although they executed most of their movements with accuracy and precision there was a strained, nervous intensity in their faces, which might easily have been relieved by better judgment on the part of the teacher in the use of the voice. I was constantly reminded of the performance of trained dogs under the whip of the master.

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*Read before the Physical Education Society of New York and vicinity, 1898.

There are different conditions which affect the manner of giving commands:—the size of class and of hall; the immediate preoccupation of the members, which will indicate the special needs of the hour in the gymnasium; the age of pupils; the disposition of the class; and the nature of the movement to be taken.

In a large hall, of course, orders must be given loudly enough to be heard by the pupils in any part of it, and with a force suitable to the occasion, commensurate with the demand to be made upon the class. It is not necessary to storm the hall; by *throwing* the voice properly the room can be filled adequately, without giving the impression of *unnecessary* loudness or intensity. If the class is small, less power of voice is required than for a large one; good judgment alone can determine how much to use.

The age of the class should be considered in the government of it; a class of mature women will not need the same manner and tone as a class of little girls or of small boys.

One must often defer to the more mature mind of a person of experience, giving reasons which to a child would be thrown away. It is reasonable and to be expected that one should assume more authority over a child than over its parents, and this should show itself among other ways in the tone of voice.

There are times when the command should be sharp and peremptory, demanding quick, unhesitating obedience. The pupil should be made to *feel* that his close attention is called for, and that nothing short of prompt, full obedience will be acceptable. Such commands as these will indicate, perhaps, that the class has been inattentive and needs to be sharply reminded of the fact; or, it may be that the tone has been used to assist the pupil, in the desired, energetic way. Sometimes, however, such forceful orders would be entirely uncalled for and even harmful in their effects. Take a class of children, for instance, high strung, ambitious, and weary, perhaps, from close attention in the school room. When they come into the gymnasium they need, first of all, to be relieved from any nervous strain they may have been under; and to begin by subjecting them to strict orders, given in military fashion, would defeat the end in view. Here, a firm, quiet command is more effective; a class may as easily be held by a soft, decided voice as by a loud commanding one, and with a very different effect. In the loud command the child is instantly *startled* into obedience, and by a continuance of such tones may be held *tensely* in order; with the gentle, yet firm voice the child is *led* into obedience, and comes under the control of the teacher without feeling any shock, being scarcely conscious that he is led, but rather that he is doing what is pleasing of his own accord. There are times when even a whispered firm-lipped command is most effective and will bring a sluggish class, delinquent in time, right up to the mark.

The intensity of a command should be subservient to the execution of a movement. Many teachers do not make this distinction, and, giving over-importance to the tone, put so much force, so much of themselves, into the command, that to an outsider, the most conspicuous part of the work is that of the teacher giving orders. An officer, commanding his troops on the field of battle, may with reason, shout to his men and throw himself into his voice and manner to an extreme degree; lives may depend upon it; but a gymnastic teacher, drilling a class through an hour's lesson in the gymnasium has no such excuse for over-intensity and should have more regard for the law of proportion. In a simple movement (as for instance from a flexion to an extension of the arm), let the order *sometimes* be given, *not* in loud tones, with unnatural emphasis, but in a natural, decided tone of voice.

One secret of the power which one person exerts over another is largely in the thought that there is more force behind that already exerted. For continuance of control, there must be reserved power. If, during the lesson, there is no moment where the teacher is in repose, the class will feel the strain and want of reserve, and will show repugnance to such constant driving. The class must feel the reserve, as well as the demonstrated force. If a teacher constantly gives himself to his fullest intensity, pupils will be over-stimulated, and teacher and class together will, in time, succumb to unnecessary fatigue.

A very common failing on the part of the teacher is the *constant* use of the voice,—a never ceasing admonition—a running fire of comment. This weakens rather than strengthens the teacher's power to instruct; the class first listens, then ceases to notice what is being said; it is like a buzzing fly in a drowsy, summer's day. Do not annoy your class by this constant buzzing.

One thing that is needed, then, in commanding a class, is better judgment and more common sense in the use of controlling power of the voice.

GYMNASIUM LEADERS, THEIR SELECTION, DEVELOPMENT AND OPPORTUNITIES IN THE YOUNG MEN'S CHRISTIAN ASSOCIATION.*

J. GARDNER SMITH.

THE gymnasium leader in the Young Men's Christian Association is a factor of importance. It must be remembered that the work of this now great organization, first conceived in 1844, is distinctively Christian. The designation Christian is used in its broadest sense, otherwise the gymnasium would have no place in the Association. The leader should therefore be chosen from among the active Christian men or at least be a man in sympathy with the higher work of the Association. This implies a man of strength, of character and mind, as well as body. He should be interested in men, first, in gymnastics, second. He must be a natural leader and a good teacher, and if possible a good gymnast.

The character of the gymnastics in the Young Men's Christian Association has so changed within the past ten or fifteen years that the leader is not expected to be a star performer. The aim of the Association gymnasium work is "*health, education, recreation.*" Leaders are selected who are capable and willing to promote this aim.

The development of the leader must depend of course upon his natural ability and his special training. The first class organized with the idea of special training, was at the Young Men's Institute Branch, New York City, in the winter of 1885-86. These men were taught specially to handle sections of eight or ten men on the heavier apparatus, chest-machines and indoor athletic events.

In the fall of 1888, anatomy and physiology, with a course of First Aid to the Injured, was introduced. In 1889 a course in "Theory and Practice of Gymnastics" was outlined. Today these methods of training are in vogue not only in New York City, but throughout the United States. From October till January the men pursue a course in anatomy, physiology, hygiene and theory of gymnastics; from January till May a course in "First Aid to the Injured" and hygiene with theory of gymnastics. During the entire season, practical floor work is taught weekly. The leader wears some emblem indicative of his position so that new members may go to him for help. Upon passing satisfactory examination in the subjects taught he receives a regular appointment by the president of the Association as a leader. A few men are graduated every year to replace those who become engrossed by family or business cares. The training of the leader then comprises an outline study of the human body and the application of gymnastics to its highest development. He is trained to teach men individually, in squads or divisions, and if capable, to lead mass class work. His development as a leader depends, of course, upon his individuality and his opportunities.

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*Read before the Physical Education Society of New York and vicinity, May 17, 1898.

The possibilities are limited only by his capabilities, time and ambition, mainly the latter. A good leader is not necessarily a good gymnast. Some of the best teachers in our schools and colleges are not great scholars. Other things being equal, a good gymnast of course will make a stronger leader. His real proficiency as a leader will depend much upon his bearing, his form, the way he approaches and leaves a piece of apparatus.

A careless worker can scarcely expect the respect of the men of his associates. If his work on horizontal bar, parallel bar, horse, and with clubs, balls, pulley-weights, etc., is always done carefully he will receive due respect and support. The clown may be popular, but he is not respected. The possibilities of such a leader are multiple. His word will be respected and his influence far-reaching. Although the time of such a man may be limited, yet other men will soon learn when he is to be present and will be drawn to him and developed by him.

Tact in handling men will regulate the opportunities of the leader more, perhaps, than anything else. Few men really appreciate the power of one man over another. With this in mind tact is essential. The leader must be just firm enough to secure discipline without force. His motto should be "Peace without force of arms." He must not ridicule a man because he is incompetent, nor scold him for delay, but must lead him by suggestion and practical help to the highest attainment. As one walks along the street he will be able to say of this man, he is a hustler and his influence will be felt, or of that man, he is careless and never will amount to anything. So in estimating the possibilities of an individual leader, his bearing when not really leading a division or class will be noticed. The respect and esteem of his fellows will be increased or decreased by his general conduct and habits of intense earnestness. A young man today has greater opportunities before him than Washington, Lincoln or Garfield, if he will improve every moment, always dignified but sympathetic and kind, always erect and earnest but not overbearing or presumptive, always looking for some new exercise or studying for some new facts, but not forgetting that exercises old to the leader are new to the men and that facts tame to him may be new to them; such a man will be assured of possibilities which many in moments of inspiration may desire, but for which they are not willing to work earnestly. What greater possibility is there before a man than the ability to influence other men? A leader who has helped a man to build a strong, symmetrical, useful body has done good service to his fellow-man. A leader who has influenced some man to think about his own physical and mental improvement and about helping some other man, has rendered still greater service to his fellow. A leader who has been instrumental in stimulating another to the highest type of manhood, has done the greatest service, and reached the highest possibility that any man ever reaches.

GYMNASIUM LEADERS; THEIR SELECTION, DEVELOPMENT, OPPORTUNITIES, USEFULNESS, ETC. AMONG THE TURNVEREINS.

HENRY METZNER.

THE subject involves the question, "What is Gymnasium work?" The answer will naturally be, "It is the development of all physical faculties, strength, health, adroitness, endurance, etc., which can be developed and improved by means of regular physical exercises; but this answer does not settle the question, in what way gymnasium work is to be performed to secure the above result satisfactorily.

Not until late and even at the present time, the performance of gymnasium work was, mainly in American gymnasia, left to individual inclination and but little, if any, pressure or effort was enacted to induce the gymnast to practice for the sole purpose of gaining a general or thorough development. The desire for such a development was not at hand, and the only aim was or is the achievement of the highest possible skill in any one branch of the gymnastic art to gain a high standard or to break a record. A professional athlete who knows all the necessary tricks in these branches, was thought sufficient to conduct such gymnasium work and his duty was solely training and preparing the gymnasts in those special branches in which they were mostly interested.

In opposition to this custom is the manner by which the German gymnasium work is conducted. A drill-master or trainer would not do for it although it may be said at the same time that we do not consider it absolutely necessary that the leader of a German gymnasium should be a physician or even a teacher but a person who is able to manage or to conduct in a proper way the gymnasium work to make it a recreation as well as a means for development.

Gymnasium work in our sense is not a means to heal diseases,

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*Read before the Physical Education Society of New York and vicinity, May 17, 1898.

or to cure deformities or conspicuous or dangerous bodily defects; this should be left to private care or to private and public institutions in which such treatment can be performed in a scientific way; the gymnasium in our sense is a place where persons of average good health come together to exercise mutually for recreation or pleasure and at the same time to gain in health, strength, etc., as a natural cause of their exercises. These men do not need and do not want a doctor as their leader who investigates and tests their different organs and asks forty to fifty questions and prescribes a number of certain exercises as a medicine and thus treats the gymnast as a patient, only that he omits sending his bill for such treatment; but they need and are glad to secure a person who understands how to maintain order and discipline, who can select out of the rich well of proper movements those that suit best for his men in an amusing change, who understands how to encourage the timid and weak, and who at the same time meets his fellow-gymnasts on friendly terms and good comradeship.

Thus are the leaders of gymnasium work in the Turner societies mostly self-made leaders who did not choose the gymnastic art as a profession, but devoted time and labor for the sake of the cause. The position as "Turnwart" or leader is an honorary office; the Turnwart serves without any remuneration and as the exercises are performed in the evening, twice or three times per week, he can follow his private business or calling without interruption. The Turnwart is not always the best gymnast on the ground, but he is able to perform any average good exercise, and furthermore he is able to command, and his orders are obeyed with strict military precision.

The Turnwart is chosen by all the members of the society annually and he and his assistant are members of the board of governors of the society. The men participating in the exercises are divided into classes or squads according to ability and each squad is led by a class leader, "Vorturner," in whose charge the squad is while performing apparatus work. Regular hours are set aside for the instruction of said squad leaders, who are also chosen out of the best material in the ranks and whose position is likewise an honorary one.

At present a regular teacher takes to some extent the place of the Turnwart; the system now in vogue in the gymnasia of the

Turner societies, which puts the drill for contests more in the foreground makes this arrangement necessary, but to my opinion, the alteration is not a profit at large and the decreasing number of participants is mostly due to it. Undoubtedly that smaller number of gymnasts now have gained an astonishing skill, and we can gather a larger number in brilliant mass-exercises or in individual contests at our festivals, but this does not compensate for the general loss on the other hand, and I regret that the Turnwart now is, in not a small number of societies, but the shadow of what he was before.

The teacher's undisputed place is the school. The wide field of physical education requires a thorough mastery and knowledge of the scientific as well as the practical part of instruction; no amateur, however skilled he may be, can take his place, but on the ground where the adult gymnasts meet, the teacher should not be the leader himself. His duty is to teach and not to lead. His place is in teaching the squad leaders, in drilling the class for competitive work, in arranging and preparing public performances, etc., but the authoritative power rests in the Turnwart, and he is the person responsible for order and discipline. This is absolutely necessary in societies organized on entirely democratic principles, as are the Turner societies. I admit that this would hardly do in differently organized gymnasia, as for instance those of the Y. M. C. A., or those under private management.

As to the selection and development of the leader or Turnwart in the Turner societies, I refer to the foregoing remarks. As to his opportunities in fostering and elevating gymnasium work, I may add that this depends mainly on his ability to maintain order and strict military discipline during the hours of instruction and to furnish such advice as is necessary to the improvement of the work. His usefulness is undoubtedly great if he is the right man in the place, and it will increase or lessen according to the more or less ability and energy he possesses, as is the case with all men holding public offices. I may close with the remark that in case of a defect, the remedy lies, as in public life, in the democratic organization upon which the Turner societies are founded.

OFFICIAL ANNOUNCEMENTS.

NATIONAL COUNCIL OF THE A. A. A. P. E.

THE National Council hereby announces a National Convention of said Association, to be held in Boston, in April, 1899. Full details with provisional programme of the Convention will be given in the December number of the REVIEW.

For the Council,
E. M. HARTWELL, President.

EDITORIAL NOTE AND COMMENT.

THE National Convention, to be held during the Easter vacation in the Spring of 1899, will naturally enlist the hearty coöperation of all members of the Association for the reason that it is the first convention to be held since the annual meetings were discontinued in 1895. The annual meetings were found to be too frequent and called out an attendance from nearby regions only. It is hoped that at this coming convention all members within convenient distances will feel that they should attend in order to keep in personal touch with their fellow workers in the field of physical training.

The new constitution calls for delegates from the constituent societies of the Association, and in this way doubtless all sections of the country may be represented in the meeting, so that the convention will be more truly national than any of the previous annual meetings.

The topics for discussion are such as interest all members, and it is specially important that a consensus of opinion should be arrived at to strengthen the influence of those who believe in thorough preparation for physical training, teaching, and the limitation of the work to that which is thoroughly consistent with the training of teachers.

The proposition of establishing a system of uniform examinations in the fundamental subjects of physical training education may properly be added to the topics mentioned in the Preliminary Programme announced in the March (1898) number of the Review. Any other topics of local or general importance which should be brought up for discussion may be sent to the Corresponding Secretary for transmission to the Council.

Public interest in playgrounds is rapidly increasing. The movement should receive from us every possible encouragement since we cannot fail to appreciate its immense value and far-reaching possibilities. The broad-minded physical trainer will never be content with the restrictions of the schoolroom, or even of the best appointed gymnasium, but will seek for his pupils the more complete and spontaneous activity afforded by playgrounds to supplement the systematic training to which he himself has perhaps been limited.

In Germany, a society called the "Vereinigung für Volks-und-Jugendspiele" has accomplished much in interesting the public and in getting grounds to be used for plays and games.

There is no reason why as much or more cannot be accomplished in this country. A recent editorial in "Mind and Body" proposes that the A. A. A. P. E. interest itself in the matter, and through the local societies and scattered members, stimulate a demand for playgrounds. This has already been done by the Boston Society, which has a committee coöperating with those in charge of the city playgrounds. Much of a similar nature has also been done in Providence.

This is one of the most important means by which physical education societies and physical trainers may benefit their communities. Often a knowledge of what has been done in other places, the mode of accomplishment, the expenses and method of management, brings the recognition of its feasibility. Boston has probably done more than any other city in America, and the opportunities furnished, together with the amount of maintenance and cost, may be found in the reports of the park department. Doubtless many efforts, both successful and unsuccessful, have been made in this direction, and it is important for those who contemplate a similar movement to know of them. It would be very desirable for the Review to give this information, and all who have details of this sort which they are willing to contribute, are invited to send them to the Review to form the basis of an article on public playgrounds.

Another suggestion made by "Mind and Body" is also of marked interest. Under the caption "An Employment Office for the Teachers of Physical Training," a proposition that the A. A. A. P. E. found an employment bureau for teachers of physical training, is made.

This suggestion, novel as it may seem, admits of much being said in its favor. In America there is no standard of qualification for teachers of physical training; many teachers are excellently, many are very poorly trained, yet their recommendations may be considered equal by a school board.

In England a society has been formed for conducting examinations and certifying to the capabilities of those who have passed, and it would seem as if the present time were propitious for some such effort in this country. As "Mind and Body" suggests, there is probably no society or body of individuals capable of taking hold of the matter and carrying it through on as broad and comprehensive lines as the A. A. A. P. E.

The title "employment bureau" is not, however, sufficiently comprehensive. We should prefer to see some such plan as the following adopted: the establishment of a commission composed of members of the A. A. A. P. E. and of experts in the various lines involved, as physiology, anatomy, and first aid, whose duty it should be to examine the programme and teaching in the various normal schools of physical training, to give their own certificate to those whose training had been satisfactory, and to prepare an examination to be passed by others desirous of gaining it. This would leave the schools free to teach their special forms of gymnastics, Swedish, German, Eclectic, etc., yet would insure uniformity in the fundamental knowledge necessary for those who are to take charge of the physical development of human beings. Attainment of the commission's certificate would also involve proficiency in this special work.

It would further be necessary for the commission to consider the training and experience of those already teaching who desired their certificate, and to issue it to those who had either had a satisfactory training or should pass a satisfactory examination. These examinations could be held in different parts of the country by properly qualified individuals, accepted by the commission and empowered to act for it.

That such a scheme as this, if carried out adequately, would greatly aid the condition of instruction in physical training in the country, goes without question. It would result in the formation of a body of properly trained teachers protected against the untrained but specious individuals who now play upon the public in the name of this or that "ism." At the same time, there would be no sectarianism in this body, as the commission would undoubtedly be composed of individuals of various schools and of sufficient breadth of sympathy to lead them to act fairly in relation to all applicants.

NEWS NOTES.

(Items of interest will be published in this department as received.)

At a general assembly of Head Masters in England the extension of athletic sports was discussed. The following was voted:

"While rendering all homage to the educative value of athletic sports the Assembly regrets the increasing importance and the excessive publicity which has beeen given them."

The Ninth International Congress of Hygiene was held at Madrid, April 10-18, 1898.

A heated discussion was held over the merits of bicycling; a strong faction of medical practitioners radically opposed it as a means of exercise. It was finally agreed to accept the following conclusion:

Cycling is a form of natural and artificial movement which Hygiene can recommend whenever it is practised on the roads and in the open air, with an appropriate costume, at a maximum rapidity of 20 kilometres an hour and with a maximum daily exercise of three hours.

The following subjects were also discussed:

M. Dain.—At what age is it fitting to pass from integral spontaneous exercise to the specialized and disciplined exercise which constitutes true gymnastics?

M. Lluria.—The mechanical conception of fatigue and exhaustion.

Professor Boyer.—The better education of the left hand.

Dr. Olmedilla.—The hygiene of sleep.

Dr. Oliver.—The past and present situation of women and children in mines and manufactories.

Dr. Antiguedad.—Hygiene of locomotion in railroads.

Dr. Detourbe.—Individual protection against the harmful effects of labor.

THE Olympic games will be given at Paris in 1900. The committee has already been organized. The most important decision concerns the grounds on which the games will be held. In view of the refusal of the bureaus of the Exposition to give appropriate grounds, the committee will invite the public, upon the dates finally agreed upon, to the grounds of the various societies.

GYMNASTICS on a train: The Transsiberian moves without interruption six days and six nights on its way from St. Petersburg to Tomsk. The passengers do not, however, grow weary. There are electric lights, bed chambers, restaurants, libraries, pianos, and *gymnastic apparatus.*

GYMNASTIC lessons cannot be given in the primary schools of Russia because of a lack of properly trained Russian gymnastic instructors. Germany and Sweden are being called upon to supply the deficiency. —*La Gymnastique Française.*

THROUGH the courtesy of Mr. C. W. Hubbard, the members of the American Association for the Advancement of Science were the joint guests of The Riverside Recreation Grounds and the Boston Physical Education Society. After a reception on their arrival by Mr. Hubbard and Dr. C. J. Blake, President of the Society, assisted by a Reception Committee consisting of Dr. and Mrs. G. W. Fitz, Mr. J. M. Pierce, Dr. E. M. Hartwell, Mr. Parker Field, Mrs. Fox and Mrs. Kenfield, the guests were shown over the extensive grounds with their provisions for track athletics, tennis, football, and other out-of-door sports, including an open-air gymnasium and a swimming pool covering an area of half an acre. Dinner was then served through the hospitality of Dr. Blake.

In the evening the grounds were illuminated; the pool, lighted by a large electric lamp at the bottom, gave opportunity for an interesting exhibition of diving and swimming, and a steam launch took successive parties of guests down the beautiful waters of the Charles River. Before the evening was over, the river was crowded from bank to bank in front of the Recreation Grounds with the gaily decorated canoes and boats of the various clubs having their headquarters in the vicinity, assembled to do honor to the Scientific guests.

During the evening music was furnished by the Waltham Watch Co. Band, by singing, and by mandolin clubs on the river.

THE DIETETIC and Hygienic Gazette, a monthly devoted to timely topics of popular hygiene, has established a department of Physical Education in the magazine.

In a recent number, the following topics, among others, are discussed: Bicycle Heart; Attitude of the Profession to Cycling; The Effects of Exercise on the Hæmoglobin with Reference to the Value of Rest in the Treatment of Anæmia; The Exercise Treatment of Locomotor Ataxia; and Exercise in the Treatment of Heart Disease. The articles occupy six pages of the sixty containing the magazine.

THE problem of giving city children opportunity to play under better conditions than in the streets has been met in a number of cities the past summer in interesting ways. The entire movement is as yet in an experimental stage since in no place has adequate provision been made for giving all the children proper playgrounds.

In Boston, beside the formal playgrounds and facilities afforded by the Charlesbank Gymnasium, the playgrounds in the parks and the bath houses and swimming pools, there have been twenty school yards open under the care of the Emergency and Hygiene Association for children, and through the energy of Mayor Quincy and the coöperation of the Public Buildings Committee, the grounds have been cared for and a person has been placed in charge at each place without expense to the Association, though under its supervision.

In New York, vacation schools have been established under the direction of the School Board, in which children have been trained in certain manual accomplishments, as sewing, weaving, pasteboard cutting and simpler Sloyd operations. Besides these, ten playgrounds have been provided in the most congested regions. The street floor of the school buildings are entirely open and have been utilized for the playgrounds. It is estimated that

30,000 children were kept out of the streets through these playgrounds.

In Philadelphia, twelve playgrounds were open, under more or less supervision.

In Providence for a number of years, playgrounds have been in operation as in Boston, and specially trained instructors in charge to intelligently guide the children in their plays and games.

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PLAYGROUNDS, BATHS AND GYMNASIA.*

JOSIAH QUINCY
Boston.

THE subjects of bathing and of indoor and outdoor exercise are so closely related to each other that they may well be considered together; they both fall within the same lines of municipal policy, both have a special relation to the children and young people of a community, and both have for their object the social elevaton of the people through the promotion of cleanliness, physical development and reasonable recreation. It is but a step from the open-air play-ground to the indoor gymnasium, and the same considerations which warrant the expenditure of public money for the former, justify it for the latter purpose. There is no stopping place, either legally or logically, between the open piece of ground for the children of a neighorhood to play upon in summer, and the indoor gymnasium for the same children to exercise in during the winter. It is equally impossible to draw any line between the maintenance of an outdoor bathing place in summer and an indoor bath in winter, or between a shower bath and tub bath, serving only the purpose of promoting cleanliness, and the swimming-pool, which answers the further purpose of affording facilities for exercise and recreation.

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*Read before the American Social Science Association, at its meeting held at Saratoga, August 31, 1898, by Mayor Quincy of Boston.

The City of Boston has maintained during the present summer five beach baths, thirteen floating baths, two river baths and two swimming-pools, which will have furnished before the end of the summer season between two and three million free baths, at an expense for maintenance, including the furnishing of free bathing suits for children, of about $35,000; this summer work will be followed by the opening of a number of winter baths and swimming-pools, and of at least two or three large public gymnasia.

On account of its combined advantages in promoting at once healthy physical development and wholesome recreation, the all-the-year-round swimming-pool should, in my opinion, rank as one of the most important municipal agencies for the improvement of the condition of the people.

The proposition of the first importance in connection with these subjects is that facilities of this nature should in a large city be furnished through a considerable number of establishments designed for local use, rather than concentrated on a larger scale at one or very few, central points. Each local group of 20,000 or 25,000 people, divided upon lines which are carefully drawn in reference to social conditions and affiliations, should have its own local bathing establishment, gymnasium and playground. This figure is taken with reference to such a distribution of population as exists in most large cities; where the population is abnormally crowded it may of course be possible to make a single establishment serve the wants of a considerably larger number of persons.

The important thing is that the people of a given neighborhood should not have to go too far in order to avail themselves of such facilities. If the bath, gymnasium or playground is within half a mile to a mile of the home it will be readily and extensively used; if it is two or three miles away its use will be very greatly restricted. The difference between the use of the park and the playground brings out this fact in a striking manner; the great park is indeed of much use and value, and is worth to the community all it costs; but it no more takes the place of the local playground than the university takes the place of the common school. Indeed, a comparatively small portion of the people of a city can use its parks except very rarely; a much larger proportion, if children are included, as they should be, use local playgrounds where these are afforded. Without in the least deprecating the expenditures for great public parks, I have no hesitation in saying that we should do more to promote the social welfare of the people of great cities—which should certainly be considered by their municipal governments as an object of prime importance—if we expended far more money in providing and equipping local playgrounds, even if we were obliged to economize somewhat upon park expenditures in order to do so.

I am glad to be able to state that the importance of providing playgrounds has now been quite fully recognized by the City of Boston. Within the last three years the city has acquired parcels of land in different sections of the city for playground purposes, and has partially improved them, and by an act passed during the present year our park commissioners are authorized to spend not exceeding $200,000 a year, and not over $500,000 in all, "for the purpose of establishing a comprehensive system of playgrounds, not exceeding twenty in number, to meet the wants of the different sections of the city." While there is no money available for use under this act during the current year, it will go into effect at the beginning of next year, and within the next two or three years Boston should be very fairly well provided with local playgrounds. The importance of having the sites for playgrounds selected according to a well-considered and comprehensive plan, instead of being picked out at haphazard, can hardly be overestimated, and we are planning to provide for the needs of the future as well as the present by purchasing land in not yet fully built-up districts, while it can be bought at a comparatively low price.

Perhaps the strongest legal and moral ground upon which to place municipal expenditures for these purposes is that of their important connection with the education of the young. Very few Americans object to anything which falls within the scope of public education, though some object to expenditures for the promotion of the well-being of the adult population upon the ground that they are socialistic. While this objection is hardly to be treated very seriously in the present stage of our civilization, it is always better to move along the lines of least resistance, and therefore we may well bring baths, gymnasia and playgrounds within the limits of a well-rounded system of public education; for the time has gone by when the education of the young can be confined within the narrow limits of the school-room or to the acquisition of knowledge from books. The things which affect the child outside of the school are, as a rule, more potent than the forces which operate only in the class-room. The healthful development of the body is of no less importance than the development of the mind. It is not too much to say, as by far the larger number of persons must earn their livelihood by some form of manual labor, that a sound body is of even greater practical importance to the average individual than a well-instructed mind. The relation of cleanliness not only to physical health, but to moral health as well, is too elementary to need dwelling upon.

If the city provides convenient bathing facilities for children, it can exact cleanliness of every pupil in its public schools, and can educate their respective minds, however poor may be their homes, to the great importance of frequent baths.

The advance of civilization is largely measured by the victories of mankind over its greatest enemy—dirt; one of the chief and most fundamental differences between the savage and the civilized man is that the former is dirty while the latter is relatively clean, and the advance of medical knowledge constantly emphasizes the truth that by far the greater portion of all the disease which affects humanity can be traced back to uncleanliness of one sort or another. Cleanliness of the body leads to self-respect and to an appreciation of the importance of cleanliness in the household; and when physical dirt has been banished, a long step has been taken toward the elimination of moral dirt. If, therefore, we take any reasonable and comprehensive view of what the education of the young consists of, we shall insist upon the provision by the municipality, as a part of it, of facilities for cleanliness and exercise.

The swimming-pool seems to me to possess important advantages over any other form of bathing, particularly for the young. When we make something which is useful, also interesting and attractive, we accomplish a great deal. The child who has to be driven into the bathtub or under the shower, goes voluntarily and eagerly to the swimming-pool. When these are provided by the city, every child can readily be required, as a part of the course of public instruction, to learn how to swim. The number who will be saved from drowning by such knowledge may, perhaps, be very small, but the number who will be permanently benefited by becoming accustomed to this most admirable form of exercise, with the bodily cleanliness which is necessarily incidental to it, will be legion. This does not rest upon theory, but upon demonstrable fact; the mere offer of free instruction in swimming at our summer baths in Boston has resulted in between three and four thousand school-children who did not know how to swim presenting themselves for such instruction during the present summer and learning the art. I do not hesitate to say that if Boston had six or eight indoor swimming-pools for her 525,000 people—and we shall certainly have half this number in operation during the coming winter—there would be no great difficulty in seeing that every one of her 85,000 school-children learned to swim.

No student of social science will fail to recognize the important consequences which would follow from the successful accomplishment of such an undertaking, particularly if it were accompanied by a great increase in the number of indoor gymnasia for use in winter and of outdoor playgrounds for exercise in summer.

Nor need the expense of building and maintaining swimming-pools and gymnasia deter any city from establishing them. Land, of course, is expensive in some places; but we have found in Boston that an excellent concrete swimming pool, eighty feet in length by thirty feet in width, and four to six feet in depth, capable of accommodating between one and two hundred bathers at a time, can be built, exclusive of the building to enclose it, for about $2,500. Outside of the cost of land, a two-story building, with swimming-pool, shower baths, and gymnasium, sufficient in size for an average city ward, can be built, if necessary, at as low a cost as $25,000, and can be well administered for a few thousand dollars a year. If this is compared with other municipal expenditures, many of them for purposes of far less consequence, it surely cannot be said that the expense is prohibitory.

Boston now has two such swimming-pools in operation, and in spite of the counter attractions of the salt water baths, each of them has been used during the summer season by an average of over 1,000 bathers a day, a large majority of whom have been school-children. Our experience has demonstrated in a striking manner the local use of such facilities from the fact that, although the swimming-pool last built was only about a mile away from the first one, the attendance of the latter did not appreciably fall off, and the new pool created at once its own local patronage.

We may well, therefore, regard the local bath, gymnasium or playground as a part of the system of public instruction for the young, treating the use of such facilities by adults as incidental, and not as the primary object for which they are established. I have emphasized the argument of mere utility, but we must not lose sight of the advantages of such municipal policy from the standpoint of recreation. Both the child and the adult must recreate his forces and faculties by a change from work to some form of amusement, if he is to do his best work. We are only beginning in this country to recognize the vital importance of wholesome recreation as a factor in social development, and the propriety of furnishing to all, at the public expense, some facilities in this direction; for a large portion of the people must practically be without them unless they are so supplied.

The new policy which the City of Boston is adopting in creating a department of public music, and in arranging not only for an extension of the public band concerts which have been given in summer, but for free concerts indoors during the winter, affords a striking example of public action for improving social conditions in this direction; and while the swimming-pool and the gymnasium are not intended purely for amusement, the recreation which accompanies their use, and the pleasant occupation which they provide are by no means to be overlooked. The work of providing facilities for their children to play in a manner which shall be safe and free from opportunities of mischief is no easy one for parents; the social importance of a municipal agency which supplies to the children of the community a frequent occupation, under proper supervision, is by no means small.

The great problem of social science is that of securing some general distribution among all the people of the advantages and facilities which the progress of human knowledge and the advance of civilization have developed in such rich measure.

A sound society must be well developed throughout its membership; in my opinion, one of the most important functions of municipal government is that of promoting the feeling of community, to secure in some measure the enjoyment by all, not, indeed, of an impossible equality of social opportunity, but of a certain minimum of elementary social advantages. It is not within the power of that concentration of forces for coöperative purposes which we designate as a municipality, to make all of its citizens well educated or prosperous; but I believe that it can readily secure them sufficient facilities for cleanliness, for exercise and for recreation, to raise materially the average social standard of the community, and to promote in some measure the general well-being and contentment. No one acquainted with the rudiments of social science will, I think, question the advantages of including such objects within the scope of municipal government, and within the purposes for which it is maintained. The bath, gymnasium and playground are no unimportant agencies in promoting the civilization of great cities—a civilization which even now includes too much of barbarism, of squalor, of utter ignorance, for us to contemplate it with equanimity.

These agencies are, to be sure, of the simplest description, but the simple is often the least obvious and the most easily overlooked. Soap and water are, after all, the most potent agencies of civilization. Let us, then, see to their more universal application. It is doubtless true that the great mass of the unwashed will not lead in the movement for the general establishment of public baths; but they will surely follow in the movement if some of those who are already washed will lead in it, and they, and more particularly their children, will flock to the baths as soon as they are opened. If social reforms must generally be started by those who are so well situated that they will not themselves be directly benefited, let us appeal to some of those who have fine bath-rooms in their own homes, and who are able to move to the seashore in summer, with whom personal cleanliness is the most cardinal of virtues, to contribute something of their means and of their efforts toward a crusade for the cleanliness of the whole community, through the provision of public baths for all.

THE HYGIENE OF INSTRUCTION IN ELEMENTARY SCHOOLS.*

G. W. FITZ
Harvard University.

A DISCUSSION of the Hygiene of Instruction brings us at once face to face with one of the gravest problems of our educational system. The school receives our children at a most critical age. It lays the foundation of their future physical and mental development; it determines many times their moral attitude. We cannot question the right of the primary school to exist. That right it has long since proved. That it has faults, however, is apparent to any one who has seen and studied the actual conditions. As the school year progresses, the children become listless, inattentive, less able to grasp relations and to memorize simple statements of facts. Anthropometry shows that growth takes place largely in the vacation and is retarded during the school year; that children of seven years of age who have not attended school are taller and stronger than school children of the same age. The specialist finds that the nerve-signs increase in proportion to the faithfulness with which the school work is done.

Why is it that many young teachers break down with nervous exhaustion within the first six days of teaching? Why is it that school is a treadmill in which the natural curiosity, interest and health of the child are so frequently crushed, the ambition and enthusiasm of the teacher killed?

If we ask the teacher, she will tell us frankly, "We are forced to press the children beyond their strength. Our problem is, how shall the children coming from the freedom of home, be brought to undergo the grind of routine work that the general advance of the class may be kept equal to the standard set by school superintendent or school board? We see our way clear to but one method—discipline the children and make them work."

The grammar school teachers claim that the children are sent to them too immature to do good work, and we hear the echo of the same criticism from the high school regarding the grammar school graduates, and indeed from the college, that the young men come with undeveloped powers of observation and description, with no method of study, or ability to concentrate. The college lays the blame upon the high school, the high school upon the grammar school, the grammar school upon the primary, and the primary is now turning upon the home.

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*Read before the National Council of the National Educational Association, Washington, July 6, 1898, and the Rhode Island Institute of Instruction, Providence, October 28, 1898.

The parents ask, "What can you give us so good as school? It is a means of securing the full intellectual development of our children, of having them looked after under pleasanter conditions than at home, and finally of getting rid of them during the busiest part of our day."

These answers offer no solution. The problem involved is one of the gravest which face teachers, physicians and parents. It has been recognized by educators and they have made many attempts at correction. The school programme has been pronounced poor, and efforts have been made to enrich it. The work has been pronounced abstract, and object lessons have been introduced; uninteresting and bright colors, varied shapes, pictures innumerable have been rushed upon the child until he has been bewildered by the multiplicity of detail and further exhausted by the demand for more discriminating attention.

The fundamental difficulty has been that too much was required of the child in the beginning, and the attempt at enrichment and greater variety has but increased the burden. Little or no effort has been made to lessen the old work, that room might be made for the new, and to give adequate physical exercise and insure fresh air and sunshine to all pupils. The result is that the minds of the children are in a state of constant overpressure in the effort to accomplish the many-sided daily school programme, and in consequence their bodies are left weak and poorly developed.

In considering the hygiene of this instruction it is essential to consider in detail the teaching of reading, writing and arithmetic, since these are the classical foundation of all instruction and the backbone of the school work.

Reading has been made to include all the steps leading to the acquiring of the English language. This is natural, since the ability of the child to read is the most tangible measure of his advancement in the use of his native tongue. Reading has thus been made to take the place of oral descriptions of natural objects, of personal experiences, of oral reproductions of stories, all of which give him the power of coherent logical description. In learning to read, the child is introduced at once to arbitrary conventional symbols, which have no natural relation to the sounds he has already learned as labels of things. The whole process is to him of the nature of a puzzle; and convention, not reason, is the key. The solution lies in the memorized association of symbol and sound. The child of six or seven is so limited in this power of conventional association that he learns to read with extreme slowness and is of necessity restricted to such simple words and phrases that he has none of the stimulus of interest. "The dog is black. The dog has four feet," is no more interesting to the child than to the teacher. Experience has shown over and over again that the child who begins to read at eight, or even ten years of age, is in no wise handicapped in his later educational progress. He has the inestimable advantage of intense interest, roused by his growing ability to unlock the secrets of books and papers after the fashion of his elders. Increased maturity makes the slow, irksome task pleasurable and easy.

Writing presents similar difficulties since it involves the use of the arbitrary symbols denoting the sounds of vocal language. This is greatly increased by the required drawing of the conventional forms of the letters. This drawing is made still more difficult by the fact that the smallness of the letters necessitates a muscular control of which the child is relatively incapable. When to this is added the new requirement of making the first attempts with pen and ink, the difficulty has become enormous. It is undoubtedly true that the effort at fine coördination demanded of a young child by writing with a pen leads to a degree of nervous exhaustion unapproached by other school work. Many a teacher has come to feel that the pen in the hand of a child is indeed mightier than a sword! A rational substitute for this, which may be made of high educational value, is blackboard drawing and picture writing, which the children so enthusiastically undertake whenever an opportunity is given them.

Arithmetic has been considered of such great importance in the education of a child that in many schools it is made the sole criterion for promotion. In the primary school, a consistent effort is made, from the entrance of the child at five or six years of age, to train him to recognize number relations, concretely or abstractly, and to build on these the logical superstructure of arithmetic. Most teachers confess that in spite of the effort to make the number and arithmetic work concrete, it becomes essentially abstract and a mere matter of memory, because of the immaturity of the children. They are unable to grasp the numerical relations involved, and the drill, which makes it a pure exercise of memory, becomes necessary. Much of the aversion to arithmetical problems found later is undoubtedly due to the disheartening drill of this primary work. Here again the child who begins arithmetic at eight or ten years of age finds himself able to take it up quickly and has the liking for it that easy mastery always gives. Manual training undoubtedly offers the best opportunity for the concrete teaching of arithmetic we possess and has the double advantage of making it vivid and at the same time incidental to interesting exercises.

Besides these classical subjects, many schools have introduced what is called nature work, which includes the study of geography, plants and animals. This has formed the most important part of the materials offered for the enrichment of the school programme, and has met with success in some schools, with failure in others. It offers wonderfully valuable and interesting material for awakening the intellectual activities of childhood, and it cannot fail to take a high place in the curriculum of the primary and grammar schools. Its material for study and description is unlimited, and yet its demand upon the child may be perfectly adapted to his power of observation. In its broadening and humanizing influence it is enormously superior to most other subjects.

Another not less important enrichment of the school programme has been the introduction of physical training. In most schools, however, the already overcrowded programme has left so little time that it has frequently taken the place of recess, or has been made wholly insignificant in the week's work. In considering physical training we must remember that physical activity is the supreme factor in the development of the child; that during the age of primary and grammar school attendance growth is rapid and the stimulus of exercise is essential for its completion. It may be justly claimed that the child gains more educationally in the first seven or eight years of his life and lays a surer foundation for the mental and physical health of after life through vigorous, unrestricted, physical activity, than through any other factor whatsoever. By this, I mean spontaneous play under favorable conditions, with accompanying fresh air, sunshine and good food, supplemented and enriched by gymnastics and athletics. I do not mean that nervously-exhausting and deadening drill, known as the Swedish gymnastics, which in the name of educational gymnastics, adds fatigue to fatigue, by taking the initiative away from the child and forcing him to pay constant and close attention to the orders of the teacher that he may execute with precision entirely uninteresting and conventional movements. The plays and games of childhood present ever-varying conditions, constituting both mental and physical problems of the highest educational value.

"In play the child is the unit of force; he initiates his own conditions. His limitations are self-imposed. His self-control lies in execution rather than in inhibition. He is concerned with self-expression rather than with self-repression. Play thus relates itself to the truest conception of education, the development of power, the power of the individual to act as a self-directed unit in the community."*

Besides plays and games, physical training rightly includes manual training, gymnastics and athletics. Manual training presents such a variety of problems in the selection of materials, choice of tools, size, number and form of pieces and methods of construction, all of which enlist the deepest interest of the child that it makes the acquirement of arithmetic, reading and writing a conscious necessity. The work can be adapted to the power of the youngest child and made to present problems of perception, judgment and muscular coördination of steadily increasing complexity.

Gymnastics are also necessary, that the physical activity of the child restricted by convention or environment may be made adequate to insure complete growth. To be educational they must constantly enlarge his experience by the presentation of progressively fresh problems of control and execution. Set drills and conventional movements are of value hygienically and for correcting deformity, but cannot be considered educative. In view of the importance of physical training for the development of the child, mentally and physically, we must agree that it should take first rank in primary and grammar school work, and that at least half of the entire daily school period should be devoted to its various phases. This apportionment of time has received important confirmation from various quarters, notably from the experiment necessitated in Philadelphia by the crowded condition of the schools. The pupils who attended school half time, apparently accomplished as much as the others who had full time.

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*"Play as a Factor in Development." Amer. Phys. Ed. Review, December, 1897.

After what I have said it seems unnecessary to mention the hygiene of discipline, that fetich of the old school ideal. The child is self-disciplined when he is held to his work by the reflex attention of interest. This can always be secured when the work is adapted to his grasp, when he has the sense of power which comes with easy conquest, when he is not exhausted by the imposition of a sequence logical to the adult mind, but meaningless to him, when his attention is not dulled by a demand for attention continued beyond a physiological limit.

Pleasure in success will ever be the child's stimulus to effort. Joy in effort is for the mind trained by successful effort and should be the end sought by all teachers for their children.

In conclusion I would suggest, for your consideration, the following propositions:

(1) The mental effort of which the child is capable is primarily connected with physical activity and with sense perceptions.

(2) The physical activity most needed by developing childhood is best found in plays and games, in the various occupation imitations of childhood, in gymnastic games and in the progressively difficult demands of gymnastics and of well-directed manual training. These present mental as well as physical problems, fully adapted to the child's stages of development and insure adequate physical growth.

(3) The conditions favorable to the mental development of a child seven years of age are not found in arithmetical processes, but in concrete number relations; not in the science of language, but in its use; not in the use of symbols as in reading, nor in the efforts at fine motor coördinations as in writing with pen or

pencil, but in drawing and picture writing on the blackboard, in gymnastics and manual training, and in the fascinating study of plants and animals.

(4) The wholesome development of the child's nervous system depends upon maintaining his interest in school work, fostering and directing his spirit of inquiry and satisfying his love for activity. Suggestion and substitution must take the place of prohibition and repression. The truest discipline is the self-control of interest.

(5) The teacher must not be misled into demanding logical sequence or continuity from the child. Superficiality is both the safeguard and the stimulus of childhood.

(6) The child's increase of mental power is not in proportion to the mental effort he is forced to make, but is mainly determined by natural physical growth.

(7) The teacher should be freed from the necessity of forcing her pupils through a measured amount of work and her success should be determined by the physical condition of the children—their wide-awake interest in work and their power of coherent description.

EXERCISE AND VIGOR.*

HENRY LING TAYLOR
New York.

The human organism seems to sum up a three-fold evolution: First, ascent along the animal scale, with increasing complexity of structure and activity; second, the social, political and economic evolution from the hunting and fighting savage to civilized man, a change to still greater complexity of relations, which, while it transfers the stress of acitivity in larger measure to the nervous structures, is still characterized on the whole by an active muscular life. The third evolution, that of the individual, epitomizes in its earlier and later stages respectively the general trend of the two preceding. This race and life history is registered in the bodily structure and tendencies, from which, as well as from experience, we may infer that man is by nature well adapted to a large measure of muscular activity, and poorly constructed for a sedentary life.

Exercise and vigor are married and cannot be divorced; this is also the direct teaching of bodily structure. The five hundred voluntary muscles make up nearly one-half the weight of a well developed man. They are intimately connected by nervous filaments with the nerve centres, and through these with nearly all the tissues and organs of the body. Besides the fleshy muscles, whose contractions cause evident movements of the bodily frame, there is an important and widely distributed set of muscular fibers of a different kind, which surround the blood vessels and hollow organs and by contracting, modify their length and caliber. These involuntary fibers are equally subject to the control of nervous forces, though not to the will, and are largely dependent upon the activity of the voluntary muscles for their proper tone and function.

The fundamental, but almost unnoticed work of the economy —the cardiac contractions, the respiratory movements, the adjustments of the muscular coats of the vessels and viscera, the maintenance of vital heat—calls in twenty-four hours for expenditure of six times as much energy as the day's work of a man at hard labor. Upon the vigor and activity of the involuntary fibers, largely depends the ability of the vessels and organs to properly perform their work, and to protect the body from deleterious influences.

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*Read before the Physical Education Section of the N. E. A., Washington, July 11, 1898, in discussion of a paper on "The Effects of Exercise on the Vital Organs," by the Hon. W. T. Harris. For paper see "Indirect Effects of Physical Exercise," Proceedings of the A. A. P. E. for 1892, p. 48.

In the muscle itself, contraction produces heat, work, a sound, and certain chemical and electrical reactions. There is a greater flow of blood to the working muscle; absorption of oxygen and nutritive material is increased; tissue change and the formation of waste are accelerated. Muscular irritability is lowered by diminishing the local supply of oxygen, by admitting certain toxic substances to the blood, and by repeated stimulation. The conditions of health for a working muscle are therefore "a full supply of proper food and oxygen, unimpeded and sufficient drainage, and rest at due intervals." (Hartwell).

Considered dynamically, a muscle is a machine for converting the potential energy of its own substance into heat and motion. In muscular contraction four times as much energy is converted into heat as into work. The muscles and organs exist for and obey the nerve centres, as the soldiers of an army obey their officers. The muscles contribute also in a very important degree to modify these centres, as the general and his staff base their orders on the reports of their subordinates, and are dependent for their sustenance upon the service of the soldiers. Each is in fact, absolutely helpless without the other; for without soldiers, orders cannot be executed, and without officers, there are no orders to execute.

In health and under hygienic conditions muscular movements tend to improve the nutrition and growth of the muscles used; the blacksmith's arm is a familiar example. The larger muscles act like so many hearts, kneading and compressing the vessels and organs in their vicinity, and assisting the blood current, their own drainage and that of neighboring structures; even the bones participate to such a degree in the development of adjacent muscles that it is often possible from the size and structure of the bones alone to form a fair idea of the muscular life of their former possessor.

Only by somewhat prolonged and strenuous exercise are the lungs thoroughly ventilated, unless by special pulmonary gymnastics, as the cry of an infant. Upon the heart and circulation, the effect of exercise is most important; the tendency is to relieve the congestion of local areas, and to accelerate the circulation. The effect of exercise upon the digestive organs, upon the skin, and upon the organs of elimination is equally marked, and upon the nervous centres it is of vital importance. If a limb is amputated in early life, the corresponding brain area never reaches full development, and may be visiblv shrunken. Every movement is registered in the nerve centres, and brings them into new relations and under new influences. The mind depends for its development upon the registration and comparison of sensory impressions; of these a considerable share is of muscular origin, but the character and amount of all sensory impressions are conditioned by muscular activity. Since the effect of exercise on the different organs and vital processes is so profound, it must and does modify general vigor, temper, mind and character. Can you imagine a vigorous and beautiful physique or a thoroughly capable and well balanced mind, except as the correlative of the generous use of God-given faculties, including that of varied and thorough muscular activity? An indolent or sedentary life is inevitably reflected in weak and flabby muscles, soft or brittle bones, deficient respiratory power, feeble circulation, an inactive skin, languid and imperfect nutritive processes, deficient reactive power, in a figure devoid of grace, and not seldom in an eccentric or sluggish mentality. In the absence of considerable vigorous use of the larger muscles, one must be content to go through life withered in the essential elements of vitality and steeped in one's own stagnant and poisonous waste.

The special effects and general tendencies of exercise will depend upon the kind and amount of the muscular movements and upon many other factors. They are not always or necessarily beneficial. Movements involving mainly the smaller muscles, as in piano-playing or sewing are useless or even harmful as exercise. Movements of the larger muscles, especially those of the trunk, are the most desirable. Exercise does harm in most acute and many chronic diseases, in conditions of over-fatigue, or too scanty nourishment, in severe injuries, hæmorrhage and shock. When exercise is too severe for the reactive powers of the individual, it tends to waste, rather than to develop his powers; when it is too monotonous or badly distributed it may produce deformity. In many diseases, however, exercise systematically and properly taken is of incalculable benefit. What the individual, sick or well, usually needs is not exercise or rest, but exercise and rest in due proportion and in the proper order.

Keeping these fundamental facts in mind, let us briefly trace the rôle of exercise at the principal periods of development.

The infant, like the savage, starts out as an active being. All its crying and kicking and seemingly purposeless movements aid in the development of the individual, begun by the differentiation of a single cell, and carried on through embryo, infant, child and adolescent to adult.

At first an organism of increasing complexity is built up, later special powers are emphasized at the cost of others. Are strong and healthy organs developed when this spontaneous activity of the baby is habitually restrained and repressed? The facts speak otherwise; the over-coddled, over-dressed, and over-restricted babies are the delicate ones. Nature has provided at the start for this necessary neuro-muscular training by an inborn impulse to movement which will develop and safeguard the growing organs, if the child is protected from ignorant interference, other conditions as to diet, fresh air, and sleep, being normal. Even the savage mother, often obliged by her peculiar life to impose special restrictions upon her infant is careful to permit the necessary exercise. In describing Indian infancy and the use of the portable cradle, Mrs. Fletcher says: "It is a mistaken notion that the child is kept up all the time. Every day the baby is bathed and placed on a robe or blanket to kick and crow to his heart's content; but when the family cares call the mother away, he is put into a cradle with his arm free to play with the many bright beads that hang from the hoop that encircles the head of this little portable bed." In Africa the system of infantile physical training practiced by certain tribes is more vigorous. Mr. E. J. Glave gives the following description in the *Century*: "I note at Chikwa's that the little baby strapped to his mother's back has a rough-and-tumble time of it, but takes it all good-naturedly, and one hears very little crying in the village. The mother goes to the fields with baby on her back, bobs about for hours in the hot sun, weeding, hoeing, and doing general gardening; carries huge jars of water on her head; scrapes him repeatedly as she bends and enters the narrow, low doorways of native huts; gives him a thorough shaking as she vigorously pounds corn with a long wooden pestle; takes him by the wrist, ducks him in the stream till he is nearly suffocated, and then spreads him on a mat to dry."

The characteristic activity of the young child is shown in play, which is the spontaneous and joyous exercise of budding power, and in which motor activity, imitation, fancy and social instinct are deftly interwoven. The play of children furnishes not only amusement, but priceless mental and physical training. The child is practicing the scales of muscular experience in order later to select the chords and arrange the harmony. What the child mainly needs is opportunity; a place to play in, children to play with. Here, the city child is placed at a disadvantage, since both these essentials are too often lacking, and the child is repressed in deference to conventional standards of decorum or to the convenience of the elders. Special attention should be paid to this informal motor education of the child during its most plastic period before the school age. One of our wisest men has truly said: "He who helps a child, helps humanity with a directness, an immediateness, which no other help given to human creatures at any other time of their human life can possibly give again." With the school age come more conventional standards and more restrictions, essential no doubt, but rendering all the more imperative the relaxation of the recess, the recreation of the playground, and the freedom of out of doors, into which play, games, and later athletic sports, naturally enter. At this point we are brought face to face with the question of a more systematic and formal physical training, namely, some kind of gymnastics. This is needed, in my opinion, especially above the primary grades; and because it does train the nerve centres, the intelligence, and the character, as well as the muscles; in other words, because it forms an essential factor of a solid education, it should take its place on its merits in the regular curriculum. This means for success, intelligent, trained, and inspired teachers, and a coherent plan modified to suit particular circumstances, conditions essential in every branch of instruction. If you ask a horse-breeder how to train a horse, he will probably reply: "What kind of a horse, how old, and for what purpose?" It is impossible to breed or train an animal which shall at once be suitable for draught and for racing; nor will the training appropriate for a yearling be applicable to a three-year-old. With regard to a child the situation is similar; means must be varied to suit sex, age, race, social and other conditions. No cut-and-dried formula or system will answer. There is no ready-made prescription which will enable us to dispense with observation, experience, intelligence, and judgment in the application of established principles. Much relating both to principles and to their application remains to be worked out by pedagogic, gymnastic, and medical experts, for it will take a combination of all to produce the best practical results. Indeed, it is a favorite opinion of mine that the knowledge of the medical and sanitary expert should be drawn upon in all school matters, from the choosing of a site and the planning of a curriculum, to the daily routine of school life.

Physical training without regard to the laws of hygiene is futile. You cannot accomplish everything by exercise any more than you can by diet, sleep, recreation, dress, fresh air, or mental occupation. What is wanted is a proper proportion between the salutary ingredients of life. The relation of physical training to hygiene, will furnish a hint for correlation in the scheme of instruction. Its relation to voice culture and manual training may furnish others. One thing that has been established in the opinion of experts is the worthlessness of military drill for physical training in schools. The manual of arms is positively detrimental to the young. Proper physical training, while in the highest degree disciplinary and educational, will also assist in establishing a foundation of organic competence, which will be of the greatest ultimate value to the individual, and, of course, to the community. Still, of the two kinds of physical training, the formal and the informal, the informal under favorable conditions is probably the most valuable for its effects on the vital organs, because it is more attractive, because it is pursued in the open air, because it is on the whole more varied and thorough, and because the child can get more of it. It also is educational, and it furnishes a kind of mental training that comes from informal contact with nature and life, and which can hardly be got from books, schools, or instructors.

I heartily agree with what has been said of the evils of competitive athletics, especially in adolescents; at the same time it must be admitted that they furnish an interest and incentive that we could poorly afford to lose. They emphasize physical competence, beauty and courage, and the worth and dignity of the physical; they spread their inspiration among our young people, and fill a place in modern life comparable to that of the old Greek contests so instructively described. They cannot be made to take the place of rational physical training, but they illustrate a worthy ideal, and their principal evils may be much diminished by discouraging a too narrow specialism, and by favoring the contests of groups, rather than those of individuals.

After the school and college years come the years of performance and the years of decline; the years of the repetition of the daily task and the years when the daily task may become a burden. Modern industrialism has imposed grievous restrictions upon our people. Excessive division and subdivision of labor makes the daily round for the masses dull and one-sided; for another class the emphasis put upon the wits in the struggle and strain of competition often gives a fatal twist to mind and body; for increasing numbers the limitations of city life are added; for the majority, perhaps, false ideals and false standards of success are displayed. Solidity is sacrificed to keenness, power to penetration. Industrialism certainly has its brighter side and is, no doubt, a necessary phase of progress. Perhaps the plan is to elevate the race by killing off the unduly greedy, for those who sacrifice too ardently to greed are ruthlessly extinguished. Vital organs give way under the unnatural strain, and the community pays its annual tribute in wrecked and ruined lives.

What can exercise do for us during the maturity and decline of our powers? Much, if early training has been broad and thorough; something, when this has been deficient. Without waiting for the collapse, the wise worker uses a portion of his daily off-hours, his weekly rest, and his occasional vacation to round out his physical and mental experience, and to build up neglected or wasted powers through new activities and avocations. It is well to emphasize contrasts; let us not carry our work into our play or our play into our work. Alternation is a law of nature. Those addicted to sedentary pursuits will find delight as well as vigor in excursions with rod, gun, or camera; in the cultivation of some taste or fancy for scenery, for rocks, plants, insects or birds in their natural surroundings. Horseback riding is good; riding a selected hobby may be better. Such pursuits provide a perennial interest, sugar one's pill of physical training so that one is hardly aware of it; keep us in loving touch with our first mother, nature, from whom we cannot long or widely stray without danger and loss. Besides giving us exercise in its best form without any necessity on our part for elaborating its details, such pursuits end by giving us new points of view and better ideals.

Walking over a hard, level sidewalk is one of the poorest exercises known to man, but hill and mountain-climbing, and rambles across an uneven country, with their attendant fence-climbing and ditch-jumping, are among the best. These are within the reach of thousands who little suspect their possibilities of enjoyment and invigoration. This is the kind of exercise that will ventilate the lungs, strengthen the heart, aid the digestion, and eliminate effete material.

Still, it remains true that hundreds of thousands suffer from too much rather than too little exercise. Children of tender years are stunted in growth and development by the strain of daily labor in factory or shop, and under modern conditions the laboring adult is perhaps as often injured and deformed by his work as he is invigorated and perfected. For these, too, country rambles and excursions, with the emphasis on their restful and recreative sides will bring refreshment and new interests.

Our people are just beginning to recognize the value of country life and occupations, combined with out-of-door employments for the defective and degenerate. By such means, the idiotic, the insane, the dependent and the vicious may often be reconstructed and redeemed. Dr. Wey at Elmira found that the vicious and incorrigible dullards of the State Reform School were physically defective. They respond to systematic exercise, bathing, and a generous diet and to nothing else. Dr. Spratling of the New York State Epileptic Colony at Sunyea, reports wonderful results from removing the inmates of crowded institutions to the detached buildings of the Colony and putting them at farm work. He says he has seen epileptic seizures disappear into the ground through a hoe handle. These are but samples of a most promising field, that is but just beginning to be worked.

In advanced years comfort and refreshment will still come from the less active forms of out-of-door exercise, like gardening, driving, and rambles of moderate length. Happy he who in earlier years has acquired special interests and intimacies under an open sky.

Physical training then, like training of the mind and heart, is for all ages and all conditions a most wholesome and necessary ingredient in the full cup of life. Are there higher ideals than strength, courage, service? Dare we neglect the physical in their cultivation?

We may, I think, safely conclude that man is formed for muscular activity, and that through a wise use of exercise, his organs and powers may be educated, strengthened and refreshed.

A BRIEF RÉSUMÉ OF QUETELET'S "A TREATISE ON MAN."*

WILLIAM W. HASTINGS
University of Nebraska.

RARELY if ever in history has it been the privilege of one man to originate and name a new science, to forecast correctly the course of its development, to point out the laws which underlie all its basal phenomena and to deduce the principal conclusions rendered possible by the establishment of the science. Such was the work of A. Quetelet in Belgium and France during the early part of the century.

The term Anthropometry as defined by him is the measure of the various human faculties, including the physical, the intellectual and the moral. The law which underlies the distribution of the measurements of these faculties is The Law of Chance, also termed by mathematicians The Law of Probability.

His "Treatise on Man," however, makes no claim to set forth the outlines of a new science. It contains simply the basal phenomena, carefully collated and arranged and the deductions obtained from exact observations through many years of research. Out of this grew in later years the superstructure of his work on Anthropometry. For exact definition of terms reference must be made to his "Anthropometrie," 1870.

Quetelet holds that all anthropometric data are distributed according to the Law of Probability or the Law of Chance; the mean of a large group of individuals and the frequency of occurrence of such deviations can be accurately determined by mathematical calculation. (Vid. Appendix A., I. and II.)

The following indirect commentary on the Mean is *contained* in the introduction of the "Treatise on Man." "The greater the number of individuals observed, the more do individual peculiarities, whether physical or moral, become effaced and leave in a prominent point of view the general facts by virtue of which society exists and is preserved."

The scope of the "Treatise on Man" Quetelet defines roughly in his statement that scientific research should inquire:

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*Edinburgh, 1842.

1. What are the laws of human reproduction, growth and physical force,—growth of his intellectual powers, and of his disposition, more or less great, to good or evil; the laws regulating the development of his passions and tastes; the mode of succession of the materials he produces or consumes; the laws of human mortality, etc.?

2. What influence has nature over man; what is the measure of its influence, and of its disturbing forces; what have been their effects for such and such a period; and what the social elements chiefly affected by them?

3. Finally, can human forces compromise the stability of the social system?

In the first book he examines "all which relates to the life of man, his reproduction and mortality; in the second, the development of his stature, weight, strength, and his physical qualities in general. (Vid. Appendix B, I.)

It will not be possible in this paper to discuss at any length the conclusions reached; it is the object of the writer simply to give a brief outline of the book and to make mention of a few of the more important or unique of his deductions. To these the inexorable Law of Chance lends authority and statistical value. For every conclusion which Quetelet deduces, hundreds, and in many cases, thousands, of statistics have been gathered and scores of calculations have been made. They represent years of combined labor on the part of himself and other observers, and the conclusions are merely logical deductions obtained by the most approved mathematical methods. It will be possible in the space allotted to this paper to quote very few of these tables, but let it be understood that all conclusions quoted are based upon such definite ground. Some of these tables will be found in Appendix B.

In Chap. II, p. 11, under the heading of "The Influence of the Sexes upon the Number of Births," Quetelet makes the statement *"that more boys are born annually than girls."* The average for Europe is 106 boys to 100 girls. The ratio in Russia is greatest, 108.91 to 100; in Sweden it is least, 104.62 to 100. "After more than fourteen and a half millions of observations made in France, from 1817 to 1831, the value of this ratio has been as 106.38 to 100; and its average value has varied but little, taking one year with another."

The ratio of males to females in the population may be observed from the following table (compiled from the census of 1890):

Population.	Percentage of Males and Females in 100 individuals.		Ratio of Males to 100 Females.
	Males.	Females.	
United States	51.21	48.79	104.96
Massachusetts	48.58	51.42	94.98
Nebraska	54.10	45.90	117.95
Montana	66.50	33.50	198.50
District of Columbia	47.56	52.44	90.69

Compared with Europe of three-quarters of a century ago then, the ratio of male to female births in the United States is lower; but this ratio is of necessity shown imperfectly by these figures either in the different states or in the United States as a whole because of emigration and immigration.

It is noticeable that the predominance of females corresponds to density of population. By this, the enervating influence of city life is clearly indicated.

From observations at the Cape of Good Hope of the white and slave population it is found that female births exceeed male invariably among the white population, and sometimes among the black population. From this and other isolated facts, some are inclined to draw the general inference that *hot climates* produce more female than male children. Quetelet leaves the question open. His translator appends a note in which he defends the positions that racial, rather than climatic reasons, are responsible, and claims that "an excess of boys over girls is a law chiefly with the *Celtic and Sarmatian races*, and that in respect to the pure *Saxon race*, there exists either an opposite law, namely, the excess of females over males, or, perhaps as near as may be, an equality." Another conclusion of Quetelet is that "*The number of boys as compared with that of girls has been smaller in town than in the country;* it is to be observed, that both ratios have sensibly diminished during the latter period." The data for the table from which the foregoing conclusion is derived are taken from Belgic documents.

BIRTHS IN TOWNS.

Years.	Boys.	Girls.	Ratio.
1815-1824	164,396	154,110	106.66
1825-1829	87,516	83,122	105.29
BIRTHS IN THE COUNTRY.			
1815-1824	472,221	441,502	106.96
1825-1829	256,751	241,989	106.10

Again, *"All documents relative to states agree in giving a larger proportional number of boys for legitimate than for illegitimate births."* (See Appendix B, II.)

Prof. Hofacker has made some researches in Germany on the influence of the age of parents on male and female births, whence it results, that in general, when the mother is older than the father fewer boys than girls are born; the same is the case when parents are of equal age; but the more the father's age exceeds that of the mother, so is the ratio of the boys greater.

The different results of M. Hofacker are brought together in the following table:

Ages of the man and woman.	Boys to 100 girls.
The man being younger than the woman	90.6
" " " as old as the woman	90.
" " " older from 3 to 6 years	103.4
" " " older from 6 to 9 years	124.7
" " " older from 9 to 18 years	143.7
" " " older from 18 years and upwards	200
" " from 24-36, the woman from 16-26 years	116.6
" " " 24-36, the woman from 36-46 years	95.4

The above is a representative portion of the table.

As Quetelet remarks, the number of observations may not be sufficient to warrant absolute confidence in Hofacker's conclusions, but the investigations of Sadler in his work on "Law of Population" substantiates the same view, giving tables which show "The ratio in which the sexes are born is regulated by the difference of age of the parents, in such a manner that the sex of the father or the mother will preponderate beyond the average of the total number of births, according to the party which has excess of age. On the other hand, the sex which is in excess will have a mortality depending on the period which separates the age of the parents so that the sexes will be balanced, towards the ordinary period of marriage." (See Appendix B, III.)

Under "Influences of Places upon Fecundity," many tables and arguments of scientists are cited in proof that fecundity increases from north to south. M. Benoiston de Chateauneuf among other arguments contrasts "two extremes of temperature with each other. In Portugal, 5.10 children are born to each marriage; in Sweden, 3.62 only." His defense of this position though apparently quite convincing is not accepted by Quetelet. M. Benoiston also states that "It appears that in maritime countries the births are also more numerous than in inland states: and the same is successively the case for wine, pasturage, corn, and forest countries."

On account of the multiplicity of causes which combine to produce fecundity, Quetelet ventures only to sustain Mr. Sadler's views and to assert that "All things being equal, in a country when mortality becomes greater, marriages should become more numerous, fecundity of marriages on the contrary decreases." He also emphasizes the view that "it will be necessary henceforth in all researches in fecundity, to consider the age of marriage in the different localities." In this connection he calls attention to the fact that the age of marriage is not the same in cities and country, and that it is later in northern countries than in southern.

Under "Influence of Years upon Fecundity," it is stated "that epidemics, periods of great scarcity, and all severe scourges, do not merely exercise a sensible influence on the number of deaths, but also on the amount of marriages and births. Privations are not only mortal to the human species, but even arrest its development." Tables by years are cited for Netherlands and Belgium, showing that births, deaths and marriages depend upon the price of bread. "The influence of seasons upon Fecundity is very marked. The maximum of births is in February, both in town and country, but in the country the influence of the seasons is more marked 'since there are fewer means of maintaining an equality of temperature.' " (See Appendix B, IV and V and X.)

For both the variation in the ratio of male to female births and for differences in fecundity there appears to me to be but one basal ground, and this will no doubt ultimately be demonstrated by scientific research. The various reasons assigned for the percentage of predominance of male births under the various conditions of city and country life, legitimacy and illegitimacy, difference between ages of parents, difference in the ages of both parents, climatic and racial influences are but the various statements of the outcropping of one and the same law of *human energy*, virility in man and vitality in woman, which depend upon the accumulation of latent energy. Difference in energy determines both number of children produced and their sex. Let us examine the phenomena in hand with a view to determining their obedience to this postulate.

1. "More boys are born annually than girls." The natural explanation of the prevalence of this rule is found in the greater power of the male—as an animal and as a sentient being. Man's whole character is, or ought to be, more positive than woman's.

2. "The number of boys, compared with that of girls, has been smaller in town than in country." This agrees with what is well known as to the comparative virility and vitality of men and women living in cities as contrasted with those living in the country.

The impurities of air, water, etc., incidental to city life, the cramped conditions which discourage healthful forms of exercise, the depredations of social habits upon the proper hours of sleep, sedentary pursuits, the great fever of mental activity whether in commercial, professional pursuits, or even in forms of amusement, provoked by the competition of the age, burn out the vitality of the race. To live to a good old age in the city is the exception rather than the rule. The majority of the leading business men in our great cities are either from the country or one generation removed from it. In this connection we are reminded of the investigation of a distinguished scholar in the leading cities of the world with reference to vitality. In four generations the name of a city family which intermarries only with city blood invariably becomes extinct. No man survives to bear the family name. The legitimate explanation of this startling fact is to be found in the degree of vitality of parents. The tendency of enervated city blood is to produce children of still lower vitality, either boys who die early or girls who do not perpetuate the family name.

Superior vitality of people living in the country determines the predominance of male births and the number of children.

3. "All documents relative to states agree in giving a larger proportional number of boys for legitimate than for illegitimate births."

When we consider the prevailingly inferior stamp of man or immature boy who becomes the father of these natural children, it is no cause of surprise that fewer males are the fruit of such irregular union.

4. "The more the father's age exceeds that of the mother, so is the ratio of the boys greater."

This statement, whether true or not, certainly conforms to that which we should be led to expect. The settled mature character of the man stamps itself upon the gender of the children, and boys predominate.

M. Giron de Buzareignes sets forth the view that occupations govern largely the ratio of male births. He asserts that "agricultural occupations are favorable to the development of male births, whilst commerce and manufactures produce an opposite effect." An equivalent statement to this would be that country life increases vitality, and city life and its occupations depletes it. It seems evident that male births depend primarily upon vitality of parents, and especially upon that of the father, though hereditary influences and other disturbing causes may tend to promote exceptions to the rule. Whatever tends to deplete vitality, whether city life, sexual immorality, climate, or any scourge of famine or disease which tends to deprive man of his normal vitality and to lower his strength to the standard or below that of woman both decreases fecundity and the ratio of preponderance of male births.

Under "The Influence of Disturbing Causes on the Number of Births," Chap. III, Quetelet quotes M. Benoiston: "There is no principle of political economy on which authors are more fully agreed than that the population of a state is always in proportion to the amount of its produce." In speaking of the influence of morality, Quetelet says that "concubinage tends to produce fewer male children: the same would be the effect of all habits which enervate the powers—they also diminish the number of conceptions."

Other statements are that "years of war and peace have likewise a marked influence upon population." M. D'Invernois, from investigations of conditions in Normandy immediately following war, states that 1st, the number of births was greatly accelerated until the war breaches were filled up, and then that 2nd, the births regained almost exactly their former ratio.

STILL-BORN CHILDREN. (Chap. IV.)

The average of a table containing data from the leading cities of Europe gives the chances of still birth as 1 to 22. The mortality is greater among boys than girls. Twice as many still-births occur in cities as in the country. The causes assigned are delicacy, tight lacing, illegitimate conceptions, wilfull carelessness, venereal diseases, the abuse of strong drinks, etc. "In Gottingen in 100 births, three are dead births of legitimate children, and fifteen of illegitimate children." "The greatest mortality which has been noticed was that of the Hotel-Dieu of Paris at the end of the last century: it was one woman in fifteen for the mothers, whilst in London it was reduced to one in 238, or nineteen times less."

Chap. V. "On the Influence of Natural Causes on Mortality." (See Appendix B, VI.)

The first influence to be considered is that of *locality*. Mortality is estimated by the ratio of deaths to population. A few condensed statements of the discussion in this chapter are:

1st. That "the mortality is less in temperate climates than in the north and south, *e. g.*, in Southern Europe there is one death for 33.7 inhabitants; in Central Europe, one for 40.8 inhabitants.

2nd. That "it is greater in cities than in the country," *e. g.*, in Belgium, in cities, one death to 36.9 inhabitants, in country, one to 46.9.

3d. Elevation, climate, water and other physical conditions are the underlying causes which determine the effect of locality.

This is illustrated by a table from statistique du Department de l'Ani, by M. Bossi.

	Inhab. to one death annually.	Inhab. to one marriage annually.	Inhab. to one birth annually.
In mountains	38.3	179	34.8
On seaside	26.6	145	28.8
In corn districts	24.6	135	27.5
In stagnant and marshy districts	20.8	107	26.1

"These remarkable results offer a new confirmation of the direct ratio which exists generally between deaths, marriages and births. It may be seen also how the neighborhood of marshes and stagnant waters may become fatal. * * * We owe, also to M. Villermé, a very curious memoir on the mortality of Paris and other large cities, showing that wealth, independent circumstances and misery constitute, in the actual state of things, in respect to the inhabitants of Paris, the principal causes to which must be attributed the striking differences observed in the rate of mortality."

Again, *The Influence of sexes on mortality is very marked.* Beyond doubt there is a particular cause of mortality which attacks male children, by preference, before and immediately after their birth. The effects are such that the ratio of deaths before births is as 3 to 2; during the first two months after birth the ratio is 4 to 3; during the third, fourth and fifth months, 5 to 4; and after the eighth or tenth month a difference scarcely exists. About the age of two years mortality is nearly equal: that of women thereafter increases and becomes sensibly greater between the ages of 14 and 18 years, that is to say, after puberty; between 21 and 26, the most active period of the passions, the mortality of the male exceeds that of the female; from 26 to 30, the epoch of marriage, the mortality is once more equalized, but becomes sensibly greater for females during the whole period of fecundity; when that period ceases the mortality diminishes and the condition or ratio continues until the final period of existence for both.

Towards the age of 5 years the chances of prolonged life are the greatest whatever be the sex or place of abode; at this epoch, the probable duration of life of women in city and men in country is 50 years, and of 48 years for men in city and women in the country.

The probable life of girls married is 27 years in the country, 28 years in cities, while for unmarried males it is 24 years in the country and 21 years in cities. "The mortality is greater for men inhabiting towns, owing, without doubt, to the irregularities and excesses to which he is exposed."

Examining critical periods of life, Quetelet says: "The age of five years is very remarkable, because the mortality, which until that time is very great, is suddenly reduced and becomes extremely small until the age of puberty." (See Appendix B, VII.)

After the age of puberty the mortality becomes greater, especially among women. This increase is even perceptible among women in the country.

Towards the age of 24 there is a peculiar circumstance connected with men, viz.: a maximum which is not observed in the curve of the mortality of women. The period of this maximum coincides with that when man shows the greatest inclination to crime. It is the stormy age of passion which occupies a most conspicuous place in the moral life of man. The mortality afterwards diminishes insensibly and reaches for men in town and country a new minimum about the age of 30.

From 60 to 65 years is also a remarkable period, vitality loses much of its energy, *i. e.*, the probability of life becomes very small.

The "Influence of Years" of scarcity, wars and other scourges is invariably to deplete the population.

The "Influence of the Seasons" upon mortality, as upon births, is very marked. January is the time of greatest mortality in town, 1.158 to 1.000, and country, 1.212 to 1.000, and July that of the least mortality: .874 to 1.000 in town, and .809 to 1.000 in the country. The greater inequality of temperature in the country is responsible for the larger percentage of deaths. (See Appendix B, VIII.)

"It would appear evident that the most favorable state for man is a regular life which produces a sufficiency for his wants and which is not agitated by the passions or irregularities of town life. Misery, with the privations which it brings in its train, is one of the most powerful causes of mortality."

From the discussion in Chap. VI. under the head of "The Influence of Disturbing Causes on Mortality," three representative selections have been drawn,—Professions, Morality and Knowledge of Political and Religious Institutions.

M. Lombard in discussing the influence of the professions upon the development of phthisis divides the professions into three classes according as they are favorable, indifferent or unfavorable to the development of this disease, or, in other terms, according as they have a greater, equal, or smaller number than the general average. The data from which he draws his conclusions were from five different lists made in Paris, Hamburg, Vienna, and Geneva. The following were common to all the lists:

PROFESSIONS FAVORABLE TO PHTHISIS.

(a) Among Men.

1. Sculptors, painters, hatters, polishers, gendarmes, brushmakers, soldiers, jewellers, tailors, millers, mattress-makers, lacemen or embroiderers, lemonade-makers, domestics and hairdressers.

(b) Among Women.

1. Seamstresses, shoemakers, glovers and embroiderers.

PROFESSIONS COMPARATIVELY FREE FROM PHTHISIS.

(a) Among Men.

1. Coachmen, quarrymen, carpenters, tavern-keepers, porters at the market and message boys, porters, tanners, bleachers, bargemen, confectioners, slaters, foundrymen, and orderlies.

(b) Among Women.

1. Carders of mattresses, sick-nurses, retailers, bleachers, and gardeners.

The professions mentioned in the second division need not be cited because of the colorless average character.

Doubtless thorough investigation would reveal some others which, although not in all the lists, are unquestionably phthisis-provoking occupations.

He arrives at the following conclusions:

1. The circumstances which multiply phthisis are misery, sedentary life, and absence of muscular exercise, shocks sustained in workshops, a curved posture, the impure air of shops, the inhalation of certain mineral or vegetable vapors, and lastly air loaded with thick and impalpable dust or light elastic filamentous bodies.
2. The circumstances which exercise a preservative influence are riches, active life and fresh air, regular exercise of all parts of the body, inhalation of watery vapor or animal and vegetable emanations.

The order of destructiveness of noxious influences are:

1. Mineral and vegetable emanations.
2. Dust of different kinds.
3. Sedentary life.
4. Life passed in workshops.

5. Dry hot air.
6. Bent posture.
7. Movements of the arm striking the chest.

Preservative influences fall into the following order of importance:

1. Active life, muscular exercise.
2. Exercise of the voice.
3. Life passed in the open air.
4. Animal emanations.
5. Watery vapors.

The following table is presented by Caspar:

Men of each of the following professions then had attained the age of 70 and upwards:

Theologians	42
Agriculturists and foresters	40
Superintendents	35
Commercial and industrious men	35
Military men	32
Subalterns	32
Advocates	29
Artists	28
Teachers, professors	27
Physicians	24

"It would seem to follow from the table that mental labor is more injurious to man than bodily, but that the most injurious state is that when fatigue of body is joined to that of the mind. A sedentary life which is not exposed to any burst of excess appears, on the contrary, to be most favorable."

(*Continued.*)

SOME INVESTIGATIONS REGARDING LOSS IN WEIGHT AND GAIN IN HEIGHT DURING SLEEP.

FRANK HOMER CURTISS
Purdue University.

It is a commonly accepted theory that a man is taller in the morning than at night. But as I had never seen a statement in exact figures I determined to find out for myself. I wished also to find out whether or not there was any change in the weight of the body during the night. With these two points in view I made a series of investigations on three students whom I shall call A, B and C. These investigations were to cover one school year. Two of the men, B and C, were brothers.

The measurements were made when the men were entirely nude and were taken just before going to bed at night and as soon as they got up in the morning, the hours being approximately 10 P. M. and 6.30 A. M. Nothing was allowed to enter or leave the body between the times of the two measurements.

The investigations included observations as to the state of the weather, the kind and amount of work done during the day, and the kind of food eaten for supper, *i. e.*, whether liquid or solid. The amount of liquid taken in during and after supper was also noted. These records, together with several months' measurement records, were unfortunately gathered up by the one who "cleaned up" my room and burned with the sweepings. On this account the records of B and C are three months short, and A one month.

The weather and food observations bore no direct relation to the loss in weight if I remember correctly. But the state of the body with regard to fatigue did have a direct relation to both the loss in weight and gain in height. On one occasion, in February, when a quart (4 glasses) of water was taken after supper the loss in weight was 1.6 pounds. But on a very hot night in May when three pints (6 glasses) of water were taken, the loss was only .7 pounds.

All three men took regular gymnasium work. On the days when they had worked especially hard in the gymnasium or field it was noticed that the loss in weight that night would be less than usual, and the gain in height somewhat greater. This may be accounted for by the fact that the extra hard work of the day had used up, by perspiration, the water from the tissues more completely than usual, leaving less to be given off during the night. Even if considerable water was drunk after the hard work, the loss was still less than usual. The greater gain in height may be due to the fact that the intervertebral discs had been compressed more than usual by the extra work, and so the height at night was less than the ordinary. Jumping and pole-vaulting seemed to decrease the gain in height as compared with days of walking, climbing hills or ordinary gymnastic work.

Referring to the first part of Table No. 1, it will be noticed that A was the oldest of the three (approximately 21). He had reached his growth in height for he was slightly taller in December than in June. He gained in weight each month up to February, and from that time on lost steadily during the rest of the year. His greatest loss in weight was 1.6 lbs. His smallest loss .5 lbs. Average, .92 lbs. His greatest gain in height was 25 mm. His smallest 14 mm. Average, 19.33 mm.

B was next to A in point of age (approximately 19). He gained in weight until March and then fell off during the rest of the year, but not as steadily as did A. He was somewhat taller (5 mm.) in June than in January, showing that he was still growing slightly in height. His greatest loss in weight was 1.5 lbs. His smallest loss was only .3 lbs. This was the smallest loss made by anyone during the year. It was lost on the night of June 5, after a harrier's run of two miles made in twelve and one-half minutes at 9 P. M. Only one glass of water was drunk after the run. The losses of A and C, who were also in the run, were .8 and .5 lbs. respectively, on this occasion. B's greatest gain in height was 29 mm. This was the only time that anyone had gained more than 25 mm., although 25 mm. was reached on several occasions. B's smallest gain in height was 11 mm. Average, 18.64 mm.

C was the youngest of the three (approximately 17). It is quite evident that he was still growing in height as he was 14 mm. taller in June than in January. He continued to gain in weight a month longer than his brother, B, and two months longer than A, *i. e.*, until April, and then began to fall off as did A and B.

TABLE NO. I.

A. Age 21.

MONTH.	Average Weight in Evening.	Average Weight in Morning.	Loss in Weight.			Average Height in Evening.	Average Height in Morning.	Gain in Height.		
			Greatest.	Smallest.	Average.			Greatest.	Smallest.	Average.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	MM.	MM.	MM.	MM.	MM.
November.........	138.93	137.85	1.6	.7	1.08	.....	......	....	....	....
December.........	140.18	139.27	1.5	.6	.91	1674.05	1694.95	25	16	20.90
January............	140.24	139.34	1.6	.6	.90	1669.84	1689.60	25	15	19.76
February..........	138.56	137.50	1.6	.8	1.06	1670.31	1689.10	21	15	18.79
March..............	137.85	136.96	1.3	.6	.89	1670.37	1688.72	23	14	18.35
April...............	137.51	136.60	1.1	.6	.91	1671.47	1690.82	22	15	19.35
May...............	134.34	133.49	1.3	.5	.85	1671.86	1691.36	23	14	19.50
June...............	133.28	132.52	1.1	.5	.76	1671.68	1690.36	21	15	18.68
B. Age 19.										
January............	122.70	121.90	1.5	.5	.79	1714.43	1732.62	24	11	18.19
February...	123.23	122.42	1.3	.5	.81	1713.06	1731.62	24	12	18.55
March.............	120.63	119.92	1.4	.4	.71	1718.69	1738.23	29	15	19.54
April...............	120.96	120.28	1.1	.4	.68	1719.17	1737.52	23	13	18.35
May...............	121.50	120.72	1.5	.5	.77	1718.23	1737.06	23	13	18.83
June...............	121.02	120.36	1.0	.3	.66	1719.45	1737.86	23	14	18.40
C. Age 17.										
January............	123.20	122.47	.9	.4	.73	1691.06	1707.75	24	12	16.68
February..........	124.15	123.41	1.6	.5	.75	1694.65	1711.93	22	13	17.28
March	124.77	124.06	1.0	.5	.71	1696.92	1714.92	22	10	18.00
April...............	123.87	123.11	1.1	.6	.76	1704.59	1719.41	17	9	14.82
May................	122.40	121.68	1.1	.5	.72	1704.43	1720.60	19	15	16.16
June...............	122.41	121.83	.8	.5	.58	1705.66	1721.19	18	14	15.52

TABLE NO. II.

A..................	137.61	136.69	1.4	.6	.92	1671.37	1690.70	23	15	19.33
B..................	121.67	120.93	1.3	.4	.74	1717.17	1735.81	24	13	18.64
C..................	123.46	122.76	1.08	.5	.71	1699.55	1715.96	20	12	16.41

Average loss of all, .79 lbs. Average gain of all, 18.12 mm.

C was heavier than his elder brother, B, but lighter than A. His greatest loss in weight equals that of A, *i. e.*, 1.6 lbs. His smallest loss was .4 lbs. His greatest gain in height was 24 mm., and his smallest only 9 mm., or the smallest gain made by anyone.

Referring to Table No. 2, it will be seen that A was the oldest, the heaviest, and the shortest. His average loss in weight was the greatest, as was also his gain in height. This may be accounted for by the fact that he was by far the hardest worker of the three. B was the tallest and the lightest, but his loss in weight and gain in height exceeded that of his younger but heavier brother, C. The youngest of the three, C, grew the most and lost the least.

The total average loss in weight for all three men was .79 lbs. The total average gain in height for all three was 18.22 mm. The loss in weight was entirely through respiration and perspiration (not sweat).

These figures, showing the comparatively wide range of variation in both weight and height, show that it would be well to note the hour at which a man takes his physical examination and have his subsequent examinations take place at the same hour, or as near it as possible.

The above tables present a very forcible argument for the proper ventilation of sleeping rooms and of the bed-clothing itself.

On page 38 of Dr. Seaver's "Anthropometry" (new edition) will be found a summary of these investigations. The difference in the results as now published is accounted for by the fact that at the time I sent Dr. Seaver the figures I had not quite finished my investigations.

THE INFLUENCE OF SCHOOL LIFE ON CURVATURE OF THE SPINE.*

R. TAIT MCKENZIE
McGill University.

In a series of examinations made last year in the Montreal High School of boys varying in age from 13 to 18, and averaging a little over 15 years, I was struck by the number that presented some marked irregularity of growth, and on tabulating them I find that 20 per cent had a marked lowering of the right shoulder, 3 per cent had the left low, scoliosis was found in 2 per cent, lordosis marked in 5 per cent, and round shoulders in 3 per cent; while the habitual standing position of 30 per cent approached more or less closely to what Bernard Roth has aptly named the "gorilla type," abdomen protruded, chest flat, and head shoved forward.

These defects are found not alone among school boys, for out of 204 college students of the athletic class examined at McGill, 29 showed these same defects, varying from slight unevenness of the shoulders to marked scoliosis.

In a much more extended series of cases than those I have been able to see, other observers have found similar results, and I may quote the name of Dr. Scudder of Boston, and Dr. Seaver of Yale, who found about 6 per cent of Yale students presenting more or less lateral deviation of the spinal column.

Admitting the frequency of this fault among boys, and every observer knows that girls are much more peculiarly liable to spinal weakness and deviations during the critical age of school life, does it not seem worth while to attempt its prevention if the scientific hygienic regulation of the hours of school life can be used for that purpose?

Perhaps an enquiry into the condition of the spine during the years of childhood will show better than anything else the way in which ordinary scoliosis, or, as I prefer to call it, "fatigue scoliosis," is brought about, and I may say in passing that the great bulk of cases are of that class, the other causes, such as rickets, paralysis, etc., being responsible for but very few scattered cases in comparison.

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*Read before the Physical Education Section, N. E. A., Washington, July 11, 1898.

In infancy the spinal column is straight or bent in a slight curve forward from hip to neck, the bones are not yet ossified and present a mass of pliable cartilaginous material with small deposits of bone. Between the vertebræ, the discs are very soft and compressible, and the ligaments pliant and easily stretched.

Immediately on assuming the upright position, certain changes take place. A sharp, forward curve develops in the lower lumbar region continued up into the dorsum, so that the infantile curve is reversed, and the back is hollowed. Gradually a compensating curve in the dorsal region develops and increases till the well-marked backward curve of the back is the result, and by the time adult life is reached, a third develops in the cervical in the same direction as the lumbar.

It is while these curves are forming that the child's school life is passed.

The formation of the first or lumbar curve is helped greatly by muscular action—the great mass of the erector spinæ muscle pulling back on the vertebræ of the lower part of the dorsal region acts like a bow spring, while the powerful psoas muscles springing from the front and sides of the vertebræ, and going down to the thigh, further help in the formation of the forward curve by being on the stretch when the child is in a standing position. The other curves are undoubtedly compensatory in character. The muscles that act on the spinal column are most intricate and numerous, the superficial layers consisting of long strands passing, some to ribs, but mostly from spinous process to transverse process of the vertebra. The deeper layers are shorter and the deepest pass only from one bone to its next neighbor. Gray describes five distinct layers, each containing from 3 to 12 muscles. This apparent redundancy and unnecessary complication is after all the one safety we have in preserving the upright posture.

We know that if we hold the arm out at right angles the fatigue and pain at the shoulder soon become intolerable, and few can stand the test as long as five minutes. The main strain falls on one muscle, the deltoid, which has no relief from continuous action. The same condition would result in the back without this system of small muscles that keep working in relays, each slight movement bringing into action a new set, and relieving the tired ones. Without this ingenious arrangement the erect posture would be an impossibility. Anything that will interfere with this action of the muscles in relays will hasten the oncome of fatigue and collapse.

The constant desire for movement is the most striking quality of young animal life, human or otherwise; the play instinct so wonderfully understood by Frœbel, and so sapiently applied in the games of the Kindergarten to the development of the best physical powers of the child.

With his introduction to regular school life, the child's physical troubles begin. He is made to sit still from 3 to 6 hours, with but momentary rests at long intervals, the play instinct, expressed by recurrent attacks of the "fidgets," has to be sternly suppressed by the teacher for the sake of discipline.

The rapid fatigue of the undeveloped muscles and compression of the unformed bone is enough to encourage and fix faulty postures, but if we analyze the writing posture we can trace the progress from the normal to collapse in the position of pronounced scoliosis or skewed back. I quote from Dr. Fahrner, whose description is so good that to change it would be to spoil it.

"Before writing begins the children sit perfectly upright with both scapulæ thrown back equally. As soon as writing begins all the children move their heads slightly forward and to the left. Soon head after head drops with a rapid jerk from fatigue of the neck muscles; in a short time the back also collapses so as to hang from the shoulder blades supported by the upper arm. Then two types are seen depending on the part of the book they are at. Those writing on the upper part support themselves on both elbows, and let the chest sink forward against the desk, and the back becomes curved forward, the round back.

The eyes are three or four inches distant from the desk, and the support is from three points, the left elbow, the chest, and the right forearm, slightly. When at the bottom of the book they lose their third support and have the left elbow alone, and add to these faults of position a twisting or screwing of the back toward the right. The head is bent toward the left shoulder, the right arm with the scapula standing out like a wing rests anywhere and lightly, the eyes are too close to the paper."

This is the process of collapse by tiring out the spinal muscles as you tire out the arm by holding it at right angles, and scoliosis is the writing position become fixed.

The evils of this "confinement with hard labor" are notably increased and made more dangerous by ill-fitting desks and seats.

This subject has been taken up so fully by more able and better informed observers, such as Scudder and Hartwell in America, Cohen in England, and Fahrner, Eulenberg, and Bach in Germany, that I will do little more than mention the defects usually found, and name the remedies that have already been found efficient in combatting these evils.

The seat may misfit in three ways. It may be too low, bringing the weight on the hip bones and cramping the knees. It may be too high, leaving the legs suspended in air from the knee, a position that interferes with the circulation in the legs, and causes rounding of the back. The seat may be too deep and the back is thus prevented from reaching the back rest, with rounding of the whole back as a result.

The desk may misfit in five ways:

When too low the pupil must bend forward and round the shoulders.

When too high the book is brought too close to the eyes, and the shoulder must be raised and the back skewed in writing.

When the desk is flat or but slightly sloped the head must be brought too far forward in reading.

In the placing of a fixed desk, too great a distance between it and the seat results in some of the same defects as in a low desk, the forward bending and stretching in writing, while if too near, the chest is cramped and respiration interfered with. With so many errors it would seem a delicate matter to steer clear of them all and get the ideal desk, and if our children are to spend five or six hours a day on their seats before these desks, it is surely a matter of the gravest moment that added to confinement and fixity of position, evils in themselves, there be not added the crime of misfitting desks and seats, to accelerate weariness and hasten the production of the fixed scoliosis or fatigue.

The problem is to have a seat whose length and breadth is proportional to the under surface of the thighs and buttocks of the sitter. To place it at such a height that the sitter's feet may rest flat upon the floor when the legs are bent to a right angle, and to provide a rest that will support the sitter's back, whether quiescent or actively engaged.

The desk must be of the right height and slope. The under surface must not cramp the knees, and above all it must not be placed so far forward in relation to the seat as to require undue leaning forward in the sitter.

This last defect is shown in the normal dimensions given by Eulenberg and Bach, but was probably a concession to convenience as permitting the pupil to get in and out more easily.

A vertical line dropped from the edge of the desk cover to the chair seat is called the "difference," while the space between this line and the edge of the seat is called a "distance." If the desk overhangs the seat the distance is said to be minus; if not, it is said to be plus. Remembering these two technical terms, it is easy to explain the points of a well fitting desk.

The difference should be equal to measurement from the elbow tip to the seat, the forearm being bent at right angles and elbow to the side. The distance should be minus two inches, but if adjustable for distance, so much the better.

The desk slope is best at one in six inches.

The seat height should equal the measurement from the under surface of the bent knee to the sole of the foot.

The depth of the seat should enable the back to touch the back rest throughout. The back rest should have a projection for the loins, and should sweep backward to follow the natural curve of the back and give the figure a slightly reclining pose.

If in the furnishing of a school-room the furniture cannot be made adjustable throughout, some at least in every room should be so made, and the others constructed on the model just laid down, the result of years of experiments and thought by skilled observers.

Even with well fitting seats and desks, the present writing position is such as to favor to a marked extent the formation of fatigue scoliosis or the permanent skewed back. Vertical writing has been spoken of as a panacea for the "skewed back." It has been so strongly recommended by Cohen of London, that he says, "With the slanting script one never knows whether a pupil has sat upright or not; with the vertical script he must have sat upright while writing." Dr. E. R. Shaw has pretty clearly shown this to be fallacious, but the fact remains that its adoption would tend to lessen the frequency of fatigue scoliosis, especially if care were exercised by teachers to keep the pupils rested and in good position.

The third point that tends to produce faulty posture, the starting point of lateral curvature, is bad lighting of the school-room; if insufficient we have at once the rounded back and stooped shoulders in the pupil who cannot see clearly. The same effect is produced when the windows are so arranged that the pupil sits in his own light. The windows should be placed high up and the light should fall over the left shoulder, and never directly from the front or back.

Every school system should have a medical officer or adviser. His duties should be in brief somewhat as follows:

1st. He should give advice in the construction of school houses in matters of general hygiene, but more particularly in the lighting and seating of the school-rooms.

2nd. He should inspect the rooms from time to time during school hours to see that the pupils are not misfitted in desks or seats.

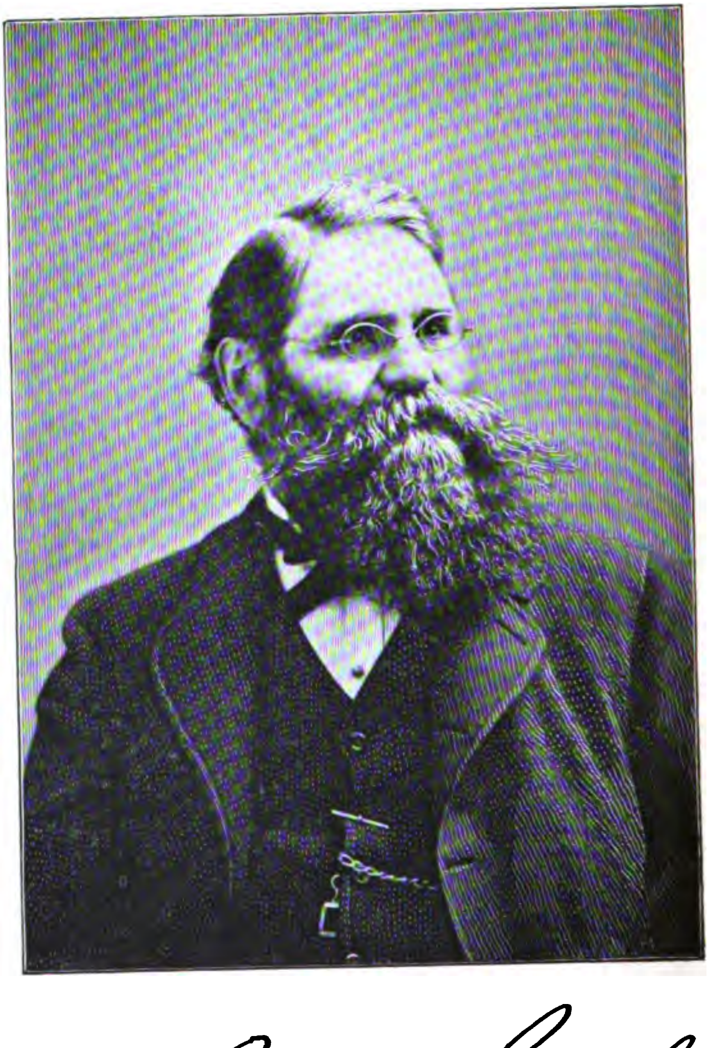
3rd. He should make a careful examination of the muscular system and heart and lungs, etc., in all pupils before taking part in the rougher games, such as foot-ball and basket-ball, and keep a record of these examinations.

4th. He should be consulted by teachers in all cases where they observe a tendency to curvature or weakness, or dulness of any of the senses—and they should then be examined carefully and a record kept.

These cases should be followed throughout their school life, and the teachers advised as to the defects, and where advisable, the parents should be warned and advised.

The school should be the place for the detection and prevention of faults in growth, but the treatment of these cases should be confined strictly to what Dr. Sargent has called "straight work," in which both sides of the body are equally used, and it does not fall within the province of the school to specially treat them any more than it would to prescribe glasses for shortness of sight.

Such work is therapeutic, and requires special, individual medcial treatment, which the instructor, when one is present, has not the time to give, even if he could and it were advisable. It is in such cases that the value of an adviser is apparent, and even those unfortunates that have passed unheeded through the plastic first stages of scoliosis till the faulty posture has become habitual, may by careful treatment be restored to the symmetry that is man's birthright.



C. Fayette Taylor.

SOME ESSENTIALS OF PHYSICAL TRAINING IN PUBLIC SCHOOLS.*

MISS JESSIE H. BANCROFT
New York.

PHYSICAL TRAINING means much more than gymnastic exercise. It would seem that one of the first essentials to successful work in this line in the schools is a realization of the breadth of the subject. The gymnastics would not be needed were there not conditions incident to the school life that are prejudicial to the physical development of the child. Some of these conditions, such as the sedentary nature of the school work, with its tendency to weaken many of the physiological functions, and to distort the posture of the child, cannot be avoided; but others, such as the shape and adaptability of the school furniture, the amount of light, the seating with reference to sight and hearing, the height of black-boards, etc., are matters that can be regulated. It is the effects of these things that the gymnastics are called upon to correct, and they properly become a matter of immediate concern to anyone having the physical well being of the children in charge. It is not to be expected that fifteen or twenty minutes of exercise can straighten up rounded shoulders or distorted spines, or expand cramped chests that have been literally moulded into their improper positions by five hours of sitting in misfit furniture. Nor can they be put into an erect position where the circulation can move freely to and from the brain, the head of a child whose poor eyesight continually draws it out of shape, or who is seated in a dark corner of the room where the effort to read and write does the same thing. Nor can they do much to alleviate the nervous strain of unrecognized and unrelieved imperfections of hearing or of eyesight.

These, then, and many more things of a similar nature must be included in the subject of physical training if the gymnastics are to make any headway against their effects.

Granting, then, the breadth of the subject as including much more than gymnastic exercise, it may be well to consider some of the essentials to the successful conduct of the gymnastic exercise. First a few words as to the administrative side of the subject.

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*Read before the Section of Physical Education, New York State Teachers' Association, Rochester, July 6, 1898.

The work of the class teacher has changed so radically and so rapidly with the development of educational methods, and especially with the introduction of what are called the specialties, that the success of both the teacher and the specialty must depend upon a clear idea of what is to be expected of each.

In the first place, no matter how large the corps of special teachers in any subject, the class teacher must be relied upon for the conduct of any lesson that has to be given daily. To expect that class teacher to select that work, however, as I have seen done, is to expect altogether too much of her.

The director of a specialty assumes, of course, under the sanction of superior officers, the responsibility of the work to be done; that is, the selection of it, the prescribing of its amount and kind. This is a graver responsibility than many are inclined to think. A lesson in gymnastic exercise is a dose of medicine acting directly upon heart action, lung action and kindred functions. To put an untrained person upon advanced work would be as injudicious as to double a dose of medicine. It takes a long study of the effects of the various movements and positions of the body, and of the power and ability of the pupils who are to take them, to know what is safe to give. On the other hand, all movements are not necessarily educational, or educational in the right way, any more than all reading is educational, and may be useless or worse than useless. To expect the class teacher to understand the technicalities of the subject sufficiently to make an intelligent selection of work is, I repeat, too much to expect of her. The first duty of the specialist then, is to determine the work to be done. and then comes the matter of instructing the class teacher in it. This, I am convinced, must be normal instruction in its two-fold aspects,—instruction in the thing to be done and criticism of the manner and method of doing it. The first part of this is readily granted and accomplished. The class teacher is perfectly willing to be taught the external form and details of the various exercises, but when it comes to conducting a lesson before a specialist and holding one's self amenable to suggestions as to manner and method, there is apt to be objection when the work is first introduced into a school system. I claim, however, that the best results cannot be obtained unless the specialist can see the teacher teach. It is not enough for the specialist to judge of the teacher's work in the subject by handling the class herself, or for the class teacher to gain her knowledge solely by watching the specialist. There is probably no subject in the whole school curriculum where so much of the result depends upon the teacher's manner, important as that always is. It is not merely a question of being interested, or of keeping the class interested, but it is a question of method. For instance, one of the most important educational results of the gymnastics is the disciplinary training, the training of will and of mind that shows in the pupil's ability to comprehend orders quickly and intelligently, and to respond to them promptly and accurately. If the manner of giving the commands is not right, if they are lifeless or slow or indecisive, if they lack the precision that can alone bring precise results, all of this will training and responsive training will be lost. For other reasons also the specialist should see the class teacher conduct a lesson when she visits the school. For instance, the hygienic effects of the work depend very largely, perhaps chiefly, upon the time in which the movements are taken and the rapidity with which the exercises succeed one another in a lesson. The whole stimulating effect of a lesson may be lost by long pauses for individual correctness, or other things that could be accomplished without interrupting the work of the class.

I would say, therefore, that the normal instruction of the class teacher should include both phases of normal training.

One other practical point in the administration of the work. My experience has led me to the conviction that the best results can only come where there is, in each school building, one person, selected from the regular corps, if the principal cannot carry it with other duties, who shall be recognized as the local authority upon the subject, one who shall decide all disputed points of procedure, and act as referee, as it were. Only in this way can uniformity be secured, for different interpretations will be put upon the instructions of the special teachers. I have had attributed to me in open meeting, and the statement backed up by five or six witnesses, the giving of directions that were never dreamed of in my philosophy; and had I not been able to appeal to the rest of the audience on the opposite side I should have doubted my own sanity. Every special teacher has the experience of hearing the most marvelous inventions, and upon asking "Where did you get that?" of being told "Why, you told us to do so." The best intentions upon the part of class teachers are not proof against these errors, and it is my conviction that to avoid these things the specialist's work should be supplemented by a resident referee in each school.

The duties of such a referee would depend upon the frequency of the specialist's visits. If these are less frequent than once a week or fortnight the duties of this resident teacher might well include a regular inspection of the classes.

To sum up, then, on the administrative side, I would say that the best results can come only when the work to be done is selected by a trained specialist; that the latter must not only instruct the class teacher in this work, and help her in presenting it to the children, but must see her teach that she may give suggestions as to the manner and method of conducting lessons; and that there should be in each school building a resident referee selected from the regular teaching force. It may be well to add that the relation of the specialist and the class teacher is not to be looked upon as one of authority and acquiescence, but one of mutual helpfulness and coöperation. The specialist's work would be nothing were it not for the daily drill of the class teacher, and the class teacher, with all else that she has to handle, could be working in the dark were it not for the specialist. It is a coöperative work with the one end in view, of achieving the best results for the children, and the specialist's function is fully as much one of commendation and encouragement as of instruction and suggestion.

So much for the administrative side of the work. No matter how thorough this may be, nor how faithfully the work is pursued in the class-room, it must fail of its best possibilities if the teacher does not realize that it is a truly educational subject; one that, if rightly handled, develops power, physiological and psychological, and whose results from lesson to lesson and from term to term are observable, tangible and measurable; literally built into the growing body of the child. They show in quickened pulse beat and respiration; they show in the conformation and carriage of the body, and they show in the readiness or slowness with which mind and will respond to external stimuli. These are to be the teacher's tests of the efficiency of her work; the ways in which she is to judge of the child's development of power. If at the close of a lesson the breathing is not deeper and freer, the eyes brighter, the color better, the lesson has failed of its hygienic purpose, it has not developed heart power and lung power. If at the end of the term the pupils are not standing straighter with a better contour of chest, shoulders, spine and head, the work has been lacking in postural correction, and muscular strength and muscular control have not been developed. If the pupils are slow in response, show inertia, or on the other hand, cannot restrain their impulses but move before the proper commands are given, the psychological training has been deficient; volition, inhibition, or the train of mental processes included in motor response, have failed of their proper cultivation. The subject, then, is truly educational. It is not a string of exercises, but a definite training of powers, and it is essential for the best results that the work should be looked at from this standpoint and tested by these criteria. This means that the work is progressive from grade to grade as any other subject is. When your pupil can do a sum in arithmetic that carries him as far as 20, you let him go on from 50 to 100, but not before. When he can add a column of two figures, you let him add one of three figures, but not before. You judge of his development of power by his ability to do well a certain thing and you do not expect advanced work of him until then. The grade work in physical training is just as definitely outlined. Until a child can do certain movements correctly he has not the muscular control, and that means the nerve control, to take the more difficult movements that will have a still stronger effect upon his postural development. This same progressive idea applies the physiological and psychological aspects of the work. One grade prepares for another and advanced work cannot be expected without that preparation. It is, then, essential that the teacher should look upon the gymnastics not as an end, but as a means; that she should judge of the efficiency of her teaching by the development of power that results from it and realize that her grade work is merely a link in a progressive chain. In short, that the physical exercise is in the truest sense an education.

And this suggests one other point of fundamental importance: This training, this education, can only come, like any other training or education in the school, through that voluntary control of attention and effort on the part of the pupil that we call work. There is even now a far too prevalent idea that gymnastics are entirely in the nature of recreation; and that as such they are an all-sufficient substitute for a recess period. There could not be a greater fallacy, or graver mistake. One illustration will, I think, make this clear.

Take the case of a child who has a flat, narrow chest and round shoulders. You can put him through any amount of exercise, in the school-room and out of it; with apparatus and without it; exercise that will be very effective for stirring up the circulation, and yet not accomplish a thing toward developing that chest. You can see that very thing going on in many gymnasia. Now what is the trouble? In that child the muscles on the chest and those that oppose them on the back, have acquired the habit of disproportionate concentration and relaxation; they do not oppose each other equally; those on the front are too much contracted and those on the back too much relaxed. This has been the condition for so long that to the child it feels or seems to be the right and balanced thing. If you can put him for a few minutes into the correct position, he will feel that he is making himself ridiculous. In other words, his muscular sense has become distorted until the wrong thing seems to him the right thing, just as his moral sense can be perverted. And in any exercise that he takes this same disproportionate action between the muscles on the front of the body and those on the back will continue serving only to aggravate the difficulty, unless—and this is the key-note to the whole matter—he makes a conscious effort towards a new adjustment. The old habit cannot be broken and a new one established without an effort of attention and will held to the object to be accomplished. This is work, just as much as is the solving of a problem in arithmetic or grammar, and any school gymnastics that do not call for it fail of one of the great fundamental aims of gymnastics.

We may conclude, then, that school gymnastics to do their full work must correct posture; and that this cannot be done without that enforced or directed effort of attention and will that we call work. And just because the gymnastics are thus necessarily in the nature of work, they are not a substitute for a period of relaxation and recreation. They are a relief physically, but not a removal of the elements that make other work fatiguing.

Now in the recess period there is opportunity for an entirely different kind of exercise, and I would call the encouragement of this kind of exercise another of the essentials of the school work. The child is there released from tension, and his mind and will allowed complete spontaneity. A normal, healthful child, so released, will run and skip and shout and laugh.

The typical school recess in a city, however,—it is apt to be different in a country town,—is one in which a very few of the stronger and hardier pupils take possession of the centre of the yard for some rough-and-tumble work, while the wall and fence are lined with the weaker and more timid pupils who are really the ones who most need the exercise. I contend that such a recess is not doing for those children what it ought to do. To be thoroughly hygienic and recreative, it should be a period of rousing, stimulating, happy activity. It should be something to make the pupil breathe deeper, to clear the cobwebs out of his mind, and to put him in good spirits. And here is the opportunity for the playing of games,—a form of activity as natural to children in natural surroundings as their building of snow forts or playing with dolls. Hosts of these games have come down through centuries in many different countries, a natural heritage, like the fairy tales of folk lore, such as "Ring Around a Rosy" and "London Bridge."

In these games the training of power is astonishing and most interesting to watch. The boy who falls down today will not fall down tomorrow; he will have gained a better control over his movements. The boy who is caught this week will not be caught next week. Why? He is quicker to perceive his danger. His powers of perception are sharpened. Instead of seeing only one avenue of escape he sees two; he chooses between them and chooses more wisely. His judgment is better; his power of reaction is quickened. In short, it is a training of mind and of will as well as of body, but with this great distinction from the gymnastic work, that it is spontaneous and involuntary. A period of such activity, however brief, is truly in the nature of mental hygiene, and a pupil must return to his studies from it refreshed and invigorated.

In conclusion then, I would urge a recognition of the educational value of these two forms of exercise, the artificial and the natural, the gymnastics and the active play, and the necessity for each in a perfectly balanced scheme of physical training for the schools.

ON GROUP CONTESTS.

JAKOB BOLIN
New York.

In 1894, Captain C. Nordlander published a valuable little article on the subject of group contests (Tidskrift i Gymnastik, Bd. IV, pp. 102-112). At a discussion last year under the auspices of the New York Physical Education Society, I made some remarks, using this article as a foundation. The brief report of my words at the time published in the Review (Vol. II, No. 1, p. 45) has brought me several separate enquiries for further details. From this I judge not only that there is a fairly widespread feeling of dissatisfaction with the present work of carrying on the training of our athletes and of holding the contests, but also that others like myself have some hope that an improvement may be looked for in the direction pointed out by Nordlander, or rather by the Swedish gymnasts through Nordlander, because his words are nothing but the reiteration of the fundamental principles of Lingism applied to gymnastics. These enquiries and this belief of mine may serve as an excuse for my imposing this brief sketch upon the Review and its readers.

My first premise is this, that the desire to measure one's powers with those of another in some definite direction, is a practically universal characteristic of the human family, and perhaps more specially of its younger members. This desire may find its expression in a wrestling bout, a fisticuff, a game of cards, rivalry in dress or scholarly attainments, heroic deeds on the battlefield, quarrels by two distinguished men of science regarding priority in discovering some important law, or in any one of a thousand various ways, but it always exists in some form or other, and the educator should use it for result-gaining. So he does. And the physical educator as well as everybody else. He arranges physical contests in which his pupils may measure themselves against each other or outsiders in strength, endurance, rapidity of motion and so on. That is a correct procedure. Those in whom this desire for contest does not exist in some form or other, or in whom it is unusually weak, do as a rule not amount to much in this world of ours. In youth this desire should therefore be properly stimulated, with a constant recognition, of course, of the possibility of over-stimulation. Those who are said to decry physical contests, are in reality only opposing an erroneous application of a right principle. They are by no means ready to abolish physical contests, even if they have their hearts set upon waging a relentless war against the contests now in general vogue.

Let us then agree that physical contests should be an integral part of our physical education. In this country the majority is undoubtedly ready to accept such a statement, and those who are not, are probably opposed to it simply because they see no way by which the good of the contests can be maintained, while the overshadowing evils are abolished.

Now, these evils are of various kinds, and I am not prepared to give even a brief synopsis of them. But among the most common objections are undoubtedly these: The athletic training takes too much valuable time from the studies. It is so arranged that only those who are physically superior to the great majority are induced to partake in it, while those who are on the highway to the dogs, physically speaking, are left to shift for themselves as best they can, and even to those who are happy enough to have physical powers beyond the average, it gives only a very partial training, developing in them preëminently such powers as they already possess in a very high degree, neglecting those in which their ability is smaller and their need consequently greater. Finally, the contests, depending as they do to a great extent upon the powers of one or a few men, awake such intense interest even in those whose share in them is only handclapping, shouting and betting, that they are more or less monomaniacs on the subject for a long period, their emotions being so aroused as to make intellectual processes impossible.

In the opinion of most of my readers, some of these allegations are perhaps overdrawn. Maybe they are. But we frequently meet with them, and whether they are reasonable or not, it would certainly be a good thing for our physical education, if we could so arrange the training and the contests as not to lay them open to these attacks. Besides, I believe that they are only too true. Herein I am specially concerned with the second and third objections, which deal with the creation of specialists, and only indirectly with the other two.

Against the more formal gymnastic training based upon rational grounds, these objections are not raised, since specializations are carefully avoided. There it is the constant endeavor of the conscientious teacher to give to all an all-sided development (by which expression I do not signify such development merely or mainly as can be tested by the tape measure), and if he makes any selection among the large number of pupils who come under his care, it is the weakest, the puniest, the most backward, which receive his special attention. If the gymnastic instructor finds a man generally hampered by physical weakness or defects, he gives more time, study and care to him than to the one robust in health, muscularly strong, with good coördinative power, short reaction time, etc. The athletic trainer, on the other hand, looks upon the former without interest and even with disdain, while he pounces with avidity upon the latter as suitable timber of which to make something. If the gymnastic instructor finds a good jumper with a weak waist, he sets about to develop the waist and urges him to further progress in jumping only in a very small degree until a more equal development has taken place. The athletic trainer says: "This man may become a record breaker as a high jumper! I will try to make him jump an eighth of an inch higher than any one before him, thus shedding glory upon his college, himself and me!" The idea of teaching him to throw the hammer does not enter his head.

These are the main differences between a rational gymnastic instructor and the prevalent mode of athletic training. At the same time those are the differences between a rational and an irrational physical education. Which mode should be preferred? To ask the question is to find its answer. We cannot hesitate. It ought to be self-evident. But here comes our athletic friend and tells us that we are mistaken, that this is an age of specialists, that only he who chooses a small field in which to concentrate all his efforts can become prominent in any sphere, that our colleges should inculcate this idea into their alumni, should teach them concentration for the sake of bravery, teach them that which life demands of them, educate them to choose one point where they are strongest, and then go ahead with all their might, unless the struggle for existence shall overcome them. Alas, how frequently do we not hear such statements even from persons who are ready in the same breath to proclaim and maintain with strong reasons that the purpose of a school or college of liberal arts is not to turn out Greek or Latin scholars, nor historians, nor mathematicians, but to lay that broad and firm foundation of a general condition upon which later on a lofty tower of specialization may be erected if desirable! If these words are based upon a firm conviction and are not to be considered as a declaration of love of that which the popular fancy favors, why does not he work to prevent our colleges from turning out champion high jumpers, record-breaking sprinters, wonders in hammer throwing, instead of good all-around men? Or, maybe the cause is that same ignorance which sees in sloyd the preliminary apprenticeship in handicraft and judges it accordingly. Let us nail the falsehood that the only duty of a college is to make specialists, wherever and whenever we can. Let it remain in the pillory exposed to the eyes of the multitude until it becomes written in the souls of this multitude that its very statement is an educational crime.

And that phrase about the struggle for existence! And the survival of the fittest! Where does the athletic specialist survive? As a lawyer, as a statesman, as a theologian, as a merchant? No, a thousand time no! He survives in his own specialty and nowhere else. If his purpose is to be a Jimmy Michael, a Corbett, a Fitzsimmons, a professional "sport," then he may survive by his specialization, at least for a time. But at the bar, in the legislative halls, in the pulpit, at the business desk, he needs all his faculties well trained, well educated, well cultured even, and he will survive better in the same ratio as the previous training has made of him an all-around man. If the athletic training is its own purpose, or if it is only a preliminary to making money at public exhibitions or to bedecking the chest with medals and crowding the mantelpiece with trophies, let the specialization go on. If it is an educational process in order to fit for life, let it disappear forever. Moreover, in speaking for the struggle for existence and the survival of the fittest, we must not forget that society, during its evolution, sets more and more limits to the former in order that the latter group may be as large as possible. If we constantly harp upon the importance of letting the survival of the fittest go on unhampered, and plead it as an excuse for making the strong stronger while allowing the weak ones to fall by the wayside, then we should not be afraid of taking the step which leads us back to the Spartan exposure of weakling infants instead of using the advances of science for the saving even of those already half dead. Such a procedure differs from the athletic one only in degree, not in kind. Nobody denies that the Spartans became a physically superior race. The same process in our day would undoubtedly have a similar effect, but the simple fact meets us that our moral nature revolts against such a policy. So it ought also to revolt against the selection of the fittest in our time for a more careful training. The survival of the fittest is a natural process taken care of by nature. The ultimate object of life in society and of all the processes which make life worth living, education among them, is to assist all—not a favored few—in making their individual struggle as effective as possible, while depriving it of its harshness. Any process which is not adapted to the needs of the many is a failure as a general educational means. An educational process adapted only to unusually well developed, unusually strong, unusually healthy persons is a failure. If for athletics as now practiced is claimed a place among educational processes, it is a failure, because it has nothing to offer to the great majority, because it is aristocratic instead of democratic, because it caters to the classes and scorns the masses.

And it is further a failure because within the favored class it creates classes as already said: pitchers and catchers, hammer-throwers and pole-vaulters, sprinters and long-distance runners. But if I have those powers which make of me a naturally good sprinter, a sprinter considerably better than the average of my fellowmen, is there any reason why I should endeavor to tower still higher above them in that direction? There are undoubtedly many such reasons. If I am *at the same time* above them in all other directions. If one may say that there is any intention in nature, it should certainly be that one should make the best of his opportunities, use the powers that nature gave him to the best advantage. But if she has been kind enough to give us without our own endeavors, preëminence in one special direction while treating us like stepchildren in any other, it naturally behooves us to correct what appears to be her errors, to develop our weak points. Athleticism does not do so. Athleticism is synonymous with emphasizing, and make more prominent these errors.

No disease can be cured except by the removal of its cause. Therefore, why is there such a general tendency among athletes to create a few wonderful specialists, instead of many well-trained all-around men? Because the spirit of contest, good in itself as already said, is allowed to run mad instead of being bridled and kept under control. Because those in charge are so far carried away by the excitement of the contest as to consider the victory more important than the process which leads up to it, because they forget the kernel for the shell, because they are more anxious to break a record than to make men, because individual records are looked upon more favorably than general improvement of the great mass. Because we have slowly passed down the inclined plane until our colleges stake their honor, so to speak, on the performance of one or a few men, with the result that the majority stand aside, wondering, excited, shouting, betting, goading on their champions, exactly as was the case during the decadence of the ancient physical education. And if we do not awaken to the danger, the result in the future must be the same as in the past—the dark ages will come.

The remedy therefore—as seems logical—should be the abolishing of individual contests in our colleges and schools. Do not give the palm of victory in running to the college which has the one best runner in the college-world even if all his fellow-students are regular slow-coaches, but yield it unhesitatingly to that institution which shows the average best runners! If one school challenges another for a contest in hammer-throwing, let them each put forth a hundred and more contestants, and judge their standard by the ability of all! Let that college be champion-hurdlers, whose average score of a thousand individual hurdlers is better than a similar score of the rival!

If such were the policy, there would soon be kindled a more general *active* interest in athletics, the general student would show his interests in deeds instead of limiting it to bedecking himself with his college colors, hiring a tally-ho and making the air vibrate. He would find that upon his endeavors the honor of his Alma Mater would partly depend. But each individual would at the same time be of less importance than the present contestants. Hence the trainer, even if he keeps his eye riveted to the final contest, will find it more profitable to take the masses in hand and thus advance them all a little, than to make a phenomenon of one.

But it may be argued that if too much valuable time is withdrawn from the studies now when only a few partake in the training and contests, that same objection would be put forth with much greater strength and plausibility if many were to enter. This appears probable on the fact of it; but a closer examination shows reasons for holding the opposite view. It is not so much the time actually spent on training by the athletes which is begrudged them, though it must be admitted that some objections are made against it, but it is the loss of time due to the frenzy in which the student body is thrown, it is the loss of time due to excitement. If athletics became, so to say, the daily bread of all, that excitement would be minimized, diluted, spread over a large field, instead of being concentrated. There would undoubtedly be some excitement,—such as is good for youth because it is natural,—but insanity on the subject would be wiped out. Each would feel a healthy interest, but none would be carried away. All would be able to attend to their intellectual studies with the *requisite* power, and thus an actual saving of time would result. This would be true still more because of the improved physique and improved moral condition of the mass of students.

Such are my reasons for pleading for group contests instead of individual contests. But I take the opportunity also to say a few words against individual contests in another sense, not as a struggle between individual and individual, but as a contest in one individual and single event. That we send forth our men to compete in only one or a few events, and that we train them for such single event, thus specializing still further the specialists, is as crying an evil as that of picking the best men. No contest should ever be authorized which does not embrace as many events as give a fair expression of the all-around ability of the participants, in order that the specialist may be obliged to give some attention to the work in which he is not a star and thus acquire a more general training than is the case at present. The pentathlon of the Y. M. C. A. is a step in the right direction, though a contest consisting only of a 100-yard dash, throwing the hammer, running high jump, pole-vault and a mile run does not fulfil even very moderate demands for an all-sided training. Either a greater number of events should be introduced or others substituted in this pentathlon. We ought to have some form of climbing, some type of exercise requiring a more desired balancing power and so on, while we might well be satisfied with either the dash or mile run, though they present considerable difference.

In connection herewith, we should make the demand that every exercise which from its nature may be performed on either side, should in a contest be executed an equal number of times on each side. In hurdling, the hurdlers should be taken alternately from the right and left foot, the hammer should be thrown and the shot put alternately from the right and left side; tennis should be practiced with either hand, and in match games, every other game should be played with the left, and so on.

REPORT OF THE FIRST STANDING COMMITTEE ON THEORY AND STATISTICS.*

MR. PRESIDENT:—

Your committee on Theory and Statistics in presenting its report, wish to take the opportunity to express its thanks for, and appreciation of, the work of their predecessors (the members of your committee of last year), who have collected much of the material which has been compiled for this evening's discussion.

As you know, the American Association for the Advancement of Physical Education at its tenth annual meeting held in New York City in 1895, voted to adopt a revised Constitution and By-Laws. Under the terms of the new constitution, your Executive Committee appointed committees on Theory and Statistics, Publications and Bibliography, and on Technical matters pertaining to the practical side of physical education, and have set apart one monthly meeting for each of the committees named.

In offering for your particular consideration this evening the subject—"Physical Education as Taught in Some of the Normal Schools of This Country"—the committee wishes to state that it has found the subject broad, and one in which there was much difficulty in obtaining full statistics, and that the object in presenting it is to obtain as accurate a knowledge as is possible of some of the fundamental principles as taught in a few of the leading schools; and we wish to ask in the discussion which is to follow, for the correction of any mistakes which have been made in consulting old catalogues, where new ones were not obtainable, and for any further information which the members may be able to give.

The theory and practice of physical education is taught in this country in independent Normal Schools of Gymnastics, also in Departments of Gymnastics connected with State Normal Schools, as at the Cook County Normal School at Chicago, and the Westchester State Normal School of Pennsylvania, or as a part of the curriculum of colleges, as at Cornell,

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*Delivered before the Physical Education Society of New York and Vicinity, March 16, 1898.

Oberlin and Vanderbilt University—or connected with other organizations, as the departments of Physical Training at the Training Schools of the International Committee of the Y. M. C. A. at Springfield, Mass., and Chicago, Ill. Important work is also done in the Summer Schools of Gymnastics, the best examples of which are the Summer Course in Physical Training at Harvard University, under the direction of Dr. D. A. Sargent, and the Chautauqua School of Physical Education, under the direction of Drs. Anderson and Seaver, of Yale.

This report will deal with only six of the leading Normal Schools of Gymnastics, the choice being based upon the list furnished the committee by the Bureau of Education at Washington; we therefore ask your attention to some of the lines followed in the training of gymnastic teachers as taught at—

The Normal School of the North American Gymnastic Union, Milwaukee, Wis.

Dr. Sargent's Normal School of Physical Training, Cambridge, Mass.

The Anderson Normal School of Gymnastics, New Haven, Ct.

The Boston Normal School of Gymnastics, Boston, Mass.

The Posse Normal School of Gymnastics, Boston, Mass., and

The Physical Department of the International Young Men's Christian Association Training School, Springfield, Mass.

The history of the origin and growth of each of these is both interesting and instructive. Each was started to meet a definite need and each has proved by its progressively enlarging field of work its ability to supply the requirements. The first five named have for their object the training of men and women to fill the positions of teachers in any field of gymnastic work, but with special reference to the gymnastics of the schools and colleges of the country, both public and private. The Training School at Springfield fits young men only and for positions mainly connected with institutions of a purely philanthropic character, particularly the Y. M. C. A.'s in the cities, towns and colleges throughout the country.

Requirements for admission to the schools are more or less rigid. At Milwaukee, the candidate is first examined by a committee from the Turnverein of his own district, and then at the school he is given a thorough physical and mental examination.

The catalogue of the Y. M. C. A. Training School states of the applicant: "If a graduate of a college or high school, he shall upon entering show his certificate of graduation; if not, he must before he can be accepted, pass a preliminary examination. * * * He will also be required to undergo a physical examination."

The Posse catalogue says: "Applicants must be high school graduates or prove by examination or certificate from reliable authority that they possess a corresponding education."

Students entering Dr. Sargent's Normal Course "should be at least eighteen years of age, have good health, a sound physique, and a high school education or its equivalent."

It is understood of the candidates entering the Boston Normal School of Gymnastics that he or she is to remain during the first two months on probation.

Requirements for obtaining a diploma are practically the same in all the schools: the student must take the full course and must satisfactorily pass a written examination in all the theoretical work. These examinations are usually given at the completion of each course of lectures; the student must also stand a test of his practical, or floor work.

The length of the course in all the schools is two years and there is a tendency to increase the time to three years; several of the schools offer a post-graduate course of one year in Medical Gymnastics.

The theoretical work in the schools embraces the following subjects: Physics (Pure), Inorganic Chemistry, Biology, Anatomy, Physiology, Hygiene, General and Special Kinesiology, Psychology, Science and Philosophy of Teaching, History of Gymnastics, Study of different systems of gymnastics, Anthropometry, Lectures on First Aid to the Injured, Symptomatology, Gymnastic Therapeutics and Required Reading of Literature on Physical Education. In regard to the practical work, we may say that one system only is taught in but one of the schools, and that is at the Boston Normal School of Gymnastics, where all the attention is given to the Swedish System.

At the Posse School the system taught is essentially the Swedish, but some time is devoted each week to instruction in German and Æsthetical gymnastics.

Also at Milwaukee, although the system taught is distinctly the German, some time is allowed for instruction in Swedish gymnastics.

At the schools of the Y. M. C. A., they have a method of their own, which is founded mainly on the principles laid down by the Germans.

At Dr. Sargent's school, "no rigid system is adhered to," and instruction is given in Swedish gymnastics, Delsarte movements and Military Drill, in addition to a general training in gymnastics, including free movements, calisthenics, work with light and heavy apparatus, and individual instruction in the use of Dr. Sargent's developing appliances.

According to the Anderson catalogue, three kinds of gymnastics are taught in that school,—American, Swedish and German. Some time is also given to Delsarte movements and Æsthetic gymnastics.

Daily drills for all students are given in all the schools. Special work for individual development is given in all the schools mentioned except at the Normal School of the North American Gymnastic Union, where the student is required to pass a physical examination, and is expected to be well developed before beginning his normal work.

Under the head of Applied Gymnastics we have placed Dancing, Fencing, Boxing, Swimming and Boating. Dancing is taught in some form in all the schools except at the Y. M. C. A. Fencing, in all; Boxing, at Milwaukee and Y. M. C. A.; Swimming, in all except the Anderson and the Posse; Boating, only at the Y. M. C. A. Gymnastic games are taught in all of the schools.

An opportunity is given to the students in all of the Normal Schools mentioned to do actual teaching during the second year, so that they not only get the theory but the practice as well. At the Anderson School, the students in their SeniorYear instruct in the public schools of New Haven, and at the Boston Normal School of Gymnastics, the students instruct public school children who come to the gymnasium Saturday mornings.

Respectfully submitted,

WALTER TRUSLOW, Chairman,
JOSEPHINE BEIDERHASE,
HERMAN SEIBERT,

Committee.

REPORTS FROM SOCIETIES.

BOSTON PHYSICAL EDUCATION SOCIETY.

The 24th meeting of the Boston Physical Education Society was held on Thursday evening, October 13, 1898, at the residence of Dr. Grace Wolcott, 68 Marlborough Street. Dr. Clarence J. Blake presided.

The minutes of the previous meeting were read and approved.

The President gave a report of the excursion of the members of the A. A. A. S. to Riverside Recreation Grounds, in August last.

The resignation of Mr. J. M. Pierce, Secretary of the Society, was presented and accepted, Mr. Pierce having moved to Chicago, Ill., to take up work there.

The business of the meeting consisted in the consideration of the programme for the ensuing year; the President announced that several of the meetings had been arranged for.

November meeting. Subject: "The Value of Competitive Gymnastics." Speakers: In favor, Dr. J. Bapst Blake; opposed, Baroness Posse. (Discussion: Drs. Sargent, Lincoln, Hartwell, and others.)

November conference (at Posse Gymnasium) on the fourth Thursday in November. Subject: "Practical Gymnastics." Speakers: Drs. Sargent, Lincoln, and others.

December Meeting. To be held at Brookline High School, with demonstration at Public Bath. Subject: "Swimming." Speakers: Drs. Channing and Chase, and Mr. H. Nissen. Demonstrator: Mr. Street.

December Conference (the fourth Thursday in December). Subject: "Rest." Speakers: Miss Annie Payson Call, Dr. J. J. Curry.

It was voted that Dr. Sargent be asked to speak at the November Meeting, and Professor Hayes of Harvard College, at the December Conference.

The President suggested that the January Meeting be a public one, and that papers be read on "Public Baths," "Swimming

Schools" and "Out-Door Gymnasia in This and Other Countries," with stereopticon views of the same. The matter was referred to the Executive Committee. It was also voted: That the consideration of the Exhibition of Gymnastics to be given under the auspices of the Society, be referred to the Executive Committee.

Society adjourned.

LAURA FISHER,
Secretary *pro tem.*

CHICAGO SOCIETY OF PHYSICAL EDUCATION.

THE Chicago Society of Physical Education, which was organized in March, 1898, with a membership of six, has started its second season with a membership of fifty.

At the October meeting the subject of Vacation Schools was discussed by Dr. Banburger of the Jewish Manual Training School and Superintendent Millikin of the Vacation Schools. A short report of his own experience in teaching physical training in a Vacation School was given by Mr. George Steffins, which was followed by a paper given by Miss Blanche E. Treat, of Lake Forest University, on the "Public Playgrounds of Boston and their Development."

The general discussion which followed proved so interesting and suggestive that it was voted to continue it in the next meeting.

At the November meeting the Society witnessed an exhibition of girls' work under the leadership of Mr. Hein of the Chicago Turn Gemeinde. A continuation of the discussion of October was carried on, and the remarks of Mr. J. M. Pierce, formerly of the Boston Physical Education Society, were most helpful and encouraging.

The Society will use its influence this year to increase the number of public playgrounds in Chicago, and as far as possible, interest itself in all hygienic movements.

BLANCHE E. TREAT,
Secretary.

PHYSICAL EDUCATION SOCIETY OF NEW YORK AND VICINITY.

THE Physical Education Society of New York and Vicinity opened the school year's work with the October meeting, on the third Saturday of the month at the West Side Branch, Y. M. C. A., on West 57th Street. An interesting paper was read by Dr. M. Augusta Requa, on "Swimming, Methods of Teaching, etc., and Swimming-baths," which will appear in the REVIEW, Dr. Brown leading the discussion, which developed a large field for experiment and research on the subject, and which the Society will investigate at greater length. By request, the paper and discussion are to be repeated at the next meeting, with additional notes and views of other authorities, if desired by the participants.

The Secretary, Mr. Hillyer, gave a résumé of the courses offered by certain Schools of Physical Training during the past summer.

Six new members were elected, as follows: Mr. W. J. Ballard, Supervisor of Physical Education, Borough Queens, New York City; Miss Augusta Hinkley, Miss Charlotte Bush, Dr. Oswald Joerg, and Mr. F. J. Hayward, all of Brooklyn, and Miss Mabel Ingraham Otis, of East Orange, N. J.

J. BLAKE HILLYER,
Secretary.

REPORTS OF THE COUNCIL.

October 13, 1898.

Dr. Hartwell in the Chair. Present: Drs. Hitchcock, Hartwell, Channing, Sargent, Fitz, Miss Narey, Mr. Eberhard.

The Corresponding Secretary reported on the publication of 1,000 copies of the reprint of Dr. Plummer's article, "Athletics and Games of The Ancient Greeks." It was voted that the price to be charged for same should be referred to the Publication Committee, with power.

It was voted that the question of reprinting Dr. Hastings' résumé of Quetelet should be referred to the Committee on Publication, with power.

The suggestion made by Mind and Body that an Employment Bureau for Teachers of Physical Training should be established by the A. A. A. P. E. was discussed. It was moved and carried to refer it to a special committee for report.

It was voted to hold the National Convention of the Association in the Easter vacation of 1899, the exact date to be determined by the Committee on Programme.

It was voted to call for reports from all committees on Convention at the next regular meeting of the Council.

It was voted to hold the Council meetings on the first Friday evening of each month at 7.30 P. M.

The Secretary reported receipts for June, $44.00; for July, $36.00; for August, $15.55; for September, $5.00; making a total from January first of $742.06.

The following were admitted to membership in the A. A. A. P. E.: Miss Mabel Morse, Mr. Thomas Chesterton, Miss Zue Hunter Brockett, Mr. W. J. Ballard, Miss Mabel L. Pray, Mr. G. E. Johnson, Mr. Thomas M. Balliet, Miss Charlotte W. Porter, Dr. J. W. Shaw, Miss Gertrude Wilder.

Regular meeting of the National Council, A. A. A. P. E., November 4, at 5 Brimmer Street, Boston. Meeting called at eight o'clock. Present: Drs. Hartwell, Channing, Fitz and Mr. Eberhard.

The Corresponding Secretary reported the name of Fred W. Marvel, Physical Director, Wesleyan University, Middletown, Conn., who was accepted for membership in the A. A. A. P. E.

The Corresponding Secretary reported expenses for the month, $16.44; receipts for dues, $8.00; for subscriptions, reports, etc., $2.68; total, $10.68.

The Corresponding Secretary also reported the publication of the September number of the AMERICAN PHYSICAL EDUCATION REVIEW and the distribution of same to members. One thousand copies were printed, 77 pages each.

The Treasurer reported cash on hand October 1, $340.79; cash on hand November 1, $264.31.

Dr. Hartwell, for the Committee on Convention, reported on the programme for the meeting.

It was voted that the Convention be held Tuesday, Wednesday and Thursday, April 4, 5 and 6, 1899, and that the programme as announced for the proposed Convention of 1898 be taken as a basis for the coming Convention.

The suggestion was made and met general agreement, to have the second day's meeting of the Convention in Brookline, to visit the Brookline Bath House and listen to papers on baths and swimming, and the third day in Cambridge, if arrangements could be made for visiting the new Radcliffe Gymnasium; also that an exhibition of gymnastic work be held in the Hemenway Gymnasium on the Cambridge day.

It was agreed to submit the report of the November meeting to another member of the Council for approval before the vote should become binding.

The resignation of Miss Homans as Chairman of the Committee on Entertainment was received. The Programme Committee was instructed to prepare a preliminary programme for the Convention and to publish it in the December number of the AMERICAN PHYSICAL EDUCATION REVIEW.

Meeting adjourned.

G. W. FITZ,
Recording Secretary *pro tem.*

OFFICIAL ANNOUNCEMENTS.

The National Council of the Association for the Advancement of Physical Education has voted that the First National Convention of the Association (which was postponed, in accordance with the votes of the constituent societies, from the last week of June, 1898, to the spring of 1899) shall be held in Boston, on April 4, 5 and 6, 1899.

The AMERICAN PHYSICAL EDUCATION REVIEW of March, 1898 (Volume III, Number 1, page 62), contains an official announcement of the opinions of the Council as to the constitution and purposes of the convention. The Council begs to call the attention of the constituent societies to the announcement alluded to, and to reiterate the expressions of opinion contained therein, especially those contained in the following extract therefrom:

"The exigencies of the case seem to demand that the prescriptions of the constitution and statutes should not be construed in too strict and rigid a manner. While a considerable number of vigorous societies have been reorganized, the growth of the association has not been rapid or very large. Should a strict construction of the constitution and statutes be followed, and the choice of delegates to the convention be limited entirely to representatives of district organizations, the convention could not, fully and fairly, represent all the membership of the Association. In view of these facts the Council has decided to call upon the societies, instead of such districts as have been organized, to choose delegates to the convention on the following basis, viz., every society shall be entitled to (1) one delegate at large; and (2) one delegate for every ten members belonging to such society. No delegate shall represent more than one society, but a society may, for convenience or the sake of economy, be represented by members at large or by members of other societies, but no society, other than the Boston society, shall be represented by members of the Boston Physical Education Society. Societies in arrears in the matter of dues at the time of the meeting of the convention, may be admitted to a seat and a vote only by a resolution of the convention itself. Attention is also called to the fact that in accordance with Section 5, Division B, of the statutes, societies not represented at the convention, unless they tender the National Council sufficient excuse therefor, within four weeks from the beginning of the convention, are liable to be excluded from the Association by the National Council."

As the Council has received no intimation of dissent on the part of any of the constituent societies to the basis of representation, in the convention suggested above, it feels justified in issuing the following for the information of the Association:

PRELIMINARY STATEMENT AND PROVISIONAL PROGRAMME OF FIRST NATIONAL CONVENTION OF THE A. A. A. P. E.

Preliminary Statement.

The convention will be held in Boston, April 4, 5 and 6, 1899. The convention is to be composed of delegates duly chosen and accredited by the constituent societies, *not by districts*, as there are so few of the latter. Each society will be entitled to one delegate and one additional for every ten members after the first ten. As provided by the constitution, the members of the National Council will serve as members of the convention, but will have no vote in the convention. The President of the Council will call the convention to order and make an address.

The Council will draw up the programme of the convention, and the order of business, but it invites suggestions from the societies as to the order of business to be considered.

The Council is of the opinion that the convention besides choosing (*a*) the place at which the next convention shall be held, and (*b*) the place for National Headquarters, shall consider (1) what changes, if any, are desirable in the Constitution, Statutes or By-Laws of the Association; (2) the condition of the Association, its prospects, and the best means of increasing its influence and usefulness, and (3) the nature of the principal obstacles to the Advancement of Physical Education in the United States. The Council would suggest that the constituent societies consider these questions, and instruct their delegates in general terms concerning them. The Council believes that the convention should vote by resolution upon certain questions which will be proposed for discussion.

PROVISIONAL PROGRAMME.

Tuesday Morning, April 4.

Opening of the convention. Address by the President of the Council.

Choice of Committee on Credentials.

Report of Committee on Credentials.

Choice of Permanent Chairman and Secretary.

Choice of Executive Committee.

Choice of Committee on Resolutions.

Session of the convention as a Committee of the whole, (1) to hear reports from Standing Committee of the Council, and from the several societies, upon:

(*a*) The condition, needs and prospects of the constituent societies.

(*b*) The present condition of physical training in schools, *e. g.*, public, secondary, normal, colleges, Y. M. C. A., clubs and societies,

and (2) to consider:

(*a*) The needs of the Association.

(*b*) The most hopeful means of overcoming the obstacles to its work.

(*c*) Amendments and changes to Constitution, etc.

(*d*) The place at which the next convention shall be held.

(*e*) The district or section which shall choose the next National Council.

(*f*) The best means of continuing and improving the AMERICAN PHYSICAL EDUCATION REVIEW.

It is thought that the morning and afternoon of Tuesday can profitably be spent in considering the topics above suggested, and in dealing with the order of business. On Thursday morning, April 6, the closing session of the convention will be held, at which time, reports of committees and the discussion of and action upon resolutions, etc., will be the order of the day.

Tuesday Evening.

A public meeting to be devoted to Topics of General and Popular Interest will be held, when addresses of a nature to interest the general public may be expected.

Wednesday Morning, April 5.

The public will be invited to attend and take part in discussions.

(1) Discussion of the following resolution by speakers to be announced:

Whereas, Though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable form of educational discipline, therefore, be it

Resolved, That it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training, *unless they have taken a medical degree*, to profess or be expected to serve either as experts in school hygiene or as practitioners in Mechanotherapy.

(2) Discussion as to the advisability of the A. A. A. P. E. undertaking to determine and certify the qualification of teachers of physical training.

Wednesday Afternoon.

(1) Discussion of the following resolution by speakers to be announced:

Whereas, We believe that serious obstacles to the advancement of physical education in the United States are found in the undue and premature promotion of athletic sports, and the well-nigh general failure of school and college authorities to recognize and promote approved and rational forms of physical training, therefore be it

Resolved, That, while school games and plays are highly desirable, the introduction and support of gymnastic instruction in city and country schools is of too great importance to be subordinated to the interests of games and plays.

Wednesday Evening.

Meeting at the High School in Brookline. Subject: Swimming and Swimming Baths; to be followed by an exhibition in swimming at the Brookline Public Bath House.

Thursday Morning, April 6.

Discussion of the following question: What measures are best calculated to secure a dignified and influential place for Physical Training in the Educational Curriculum?

FINAL SESSION OF THE CONVENTION.

Reports of Committees.
Closing of the Convention.

Thursday Afternoon.

Visit to Radcliffe College Gymnasium in Cambridge.

Thursday Evening.

Gymnastic Exhibition at the Hemenway Gymnasium in Cambridge.

For the Council,
EDWARD M. HARTWELL, President.

The A. A. A. P. E. is still greatly hampered by a tardy payment of dues on the part of those who, by becoming members of the Association, have signified their interest in physical education and their desire to afford financial support to its propaganda; this lack of promptness nécessitates repeated expenditures of time and money in letters and postage. By a ruling of the Council the AMERICAN PHYSICAL EDUCATION REVIEW, after the first number, cannot be sent to members who have not paid dues for the current year.

There has been much confusion in regard to the proper method of payment, owing to the fact of membership in local societies. It has been decided by the Council to collect national dues directly from members, leaving the local societies responsible for local dues, except in cases of new members when the local officers should collect the national dues and transmit them, together with the names and addresses of the new members.

In accordance with this plan, blanks for the transmission of dues are enclosed in the present number of the REVIEW and all are earnestly requested promptly to transmit the dollar for the national dues for 1899.

Correct addresses for the following members of the A. A. A. P. E. will be gratefully received by G. W. Fitz, M.D., Corresponding Secretary, Cambridge, Mass.; Miss Janet Harvey, Mr. A. Hellrung, Miss Eva A. Hickox, Mr. Charlemagne Koehler, Mr. Herbert Lyman, Miss Mary A. Reed and Dr. M. K. Wallin.

EDITORIAL NOTE AND COMMENT.

THE income of the association is now sufficient to insure a satisfactory continuance of the REVIEW. Its exchange list already includes physical education journals from France, England, and South America, and it is hoped that the REVIEW may become a liberal exponent of the best ideas in physical education, whatever their source. Beginning with the March number for 1899 there will be a department of bibliography in which abstracts of the current literature of physical training will be given. In this way, its readers will be able more easily to keep in touch with the advance in theory and practice.

All members active in physical training are assured of a warm welcome for reports of their work and for papers embodying their conclusions. Papers read before societies, as well as reprints of papers in periodicals, are desired. The department of news items will be enlarged in so far as the material at its command warrants, and the editor will be glad to receive news from all points.

It will be especially desirable to find in connection with the REVIEW a library of publications relating to physical education, and thus to form a central library which shall eventually develop into an important reference centre for members who are working up special topics. This plan, if adequately carried out, would result in the establishment of a circulating library from which books and periodicals would be sent out to members who gave a deposit for safe return. If the resources of the association increase sufficiently, it will be possible to purchase the most important books bearing upon physical training, physiology of exercise, fatigue, child study, etc., published in the various countries and not ordinarily available. The A. A. A. P. E. by its large and varied membership, should be able to gather together a valuable specialized collection if its members give their hearty coöperation.

The recent activity in child study and school hygiene has resulted in much experimental work of value and interest. It has been shown that the fatigue of the ordinary school session is too great for the nervous systems of the children, that the method of teaching, as well as the school periods, should be so changed as to stimulate more interest and lessen the confinement, and that physical training has marked influence in preventing the nervous disorders which result from too great confinement. On this basis a strong argument is made for longer and more frequent recesses, for manual training and physical training work. There seems to be a large choice in the character of the physical training which is most beneficial to school children, since experiments have suggested that physical exercise which requires close attention and in which the pupils do not find distinct exhilaration and increase of the feeling of well-being, is as fatiguing and as exhausting as the mental work of the school.

It seems as if the present time were ripe for a consistent study of the underlying conditions which make physical training necessary in the schoolroom and for deciding what kind of exercise is effective. Teachers of physical training should make themselves familiar with the progress in these lines of study since at present it is necessary for them to justify their existence in the school programme. Within the past year physical training has been thrown out of a number of school systems for various reasons, one of the chief of which has been lack of funds, on the ground that as physical training was the last thing to be introduced, it should be the first to go. When school boards are educated to consider school hygiene of sufficient importance for its conclusions to override tradition, prejudice and political influence, we may hope to have the school programme so changed that there will be a large place for physical activity of the kind shown to be of developmental and educative value.

Summer outings of prolonged duration with free activity in sports and games furnish an ideal means of correcting some of the evils of city life. The testimony of a resultant increase in growth, strength and vitality is universal. Statistics have invariably shown that city life leads to physical degeneration, and that the unfavored population of cities is constantly replenished from the country. The children's summer week, the vacations of business men, the trips of teachers, the residence at seaside or mountain, all tend to give, more or less completely, that part of the natural life of the individual which is otherwise impossible. Cities are realizing the necessity for bringing the country nearer to the homes of their inhabitants, and are accomplishing it by establishing parks and breathing spaces. It is doubtless true that the essential factors producing the benefit of contact with the country are freedom from the persistent cares of life, fresh air and sunshine, and especially the possibilities of unrestrained physical activity under favorable conditions with interesting surroundings.

For the poor of cities, these factors would be beyond reach, were it not for parks, playgrounds, bath-houses and gymnasia. Who can say whether it will not be proved possible to obviate entirely the detrimental effects of city life by giving adequate opportunities to the poor in these ways? The legend of the giant who depended for his strength upon contact with the earth would then realize its modern practical application.

In the September number of the REVIEW we discussed the proposition of establishing a Registration Bureau in connection with the A. A. A. P. E. This seems to have aroused considerable interest and some important conditions have developed which suggest the advisability of having a free and full discussion of the matter in the local societies before the meeting of the convention at which it will be brought up for action. The following are some of the points upon which a decision should be reached:

(1) Shall present membership in the A. A. A. P. E. constitute a sufficient claim for registration? Since the A. A. A. P. E. is distinctly an association for the *advancement* of physical education, and is composed of many who are not engaged in teaching physical training and who are unprepared for such teaching, this would seem impracticable.

(2) Will it be wise to recast membership in the A. A. A. P. E. to include only those who qualify before the Board of Examiners for teaching? Is it not best to retain the present membership of the A. A. A. P. E., keeping all who are interested in physical education, and to have besides a smaller body corresponding somewhat to the old classification of active members who have demonstrated their fitness to teach physical training by either evidence of thorough preparation, or an examination as rigorous as may be determined by a properly constructed board of the A. A. A. P. E.?

(3) A decision must be reached upon the question, whether the candidate for a certificate must be prepared in all the fundamental studies, as anatomy, physiology, hygiene, physiology of exercise and emergencies, and in some special branch of practical gymnastics, as the Swedish, the German, the Sargent, etc., or shall each candidate be required to offer all kinds of work?

(4) Shall there be two grades of certificate, one for public school teachers and another for special teachers and gymnasium directors?

It is hoped that the local societies will discuss these points and give their delegates full instructions.

NEWS NOTES.*

NATIONAL EDUCATIONAL ASSOCIATION.

In connection with the National Education Association which met in Washington, D. C., early in July, 1898, the Physical Training Section held its two meetings on the afternoons of the 8th and the 11th, in the Universalist Church, one of the most desirable meeting places in the city.

The president of the department, Dr. C. E. Ehinger of the Westchester (Pa.) Normal School, called the meeting to order, and Miss Stoneroad of Washington, D. C., acted as secretary in the absence of Dr. H. B. Boice.

A carefully prepared programme was fully carried out, the first paper being one by Dr. William T. Harris, U. S. Commissioner of Education, on the *Effects of Exercise on the Vital Organs.* This was followed by one on *Exercise and Vigor*, by Dr. Henry Ling Taylor, New York City. Dr. Lightner Witmer, professor of experimental psychology at the University of Pennsylvania, spoke on *The Mental Factor in Physical Training.* Dr. Edward M. Hartwell opened the discussion of this subject, and was followed by Dr. Fitz and others.

On Monday afternoon Dr. R. Tait McKenzie of the University of Montreal, read a paper on *The Influence of School Life on Curvature of the Spine*, which elicited an interesting discussion, participated in by Mr. Edwin Seaver, Superintendent Boston schools; Mr. Aaron Goor, Superintendent Denver schools; Miss Le Garde of Providence, Miss Thayer of Syracuse, Mr. G. E. Johnson of Andover, Miss Shrieves of Milwaukee and Dr. Ehinger, the president.

Play in Physical Education was the subject of the last paper on the programme, given by Mr. G. E. Johnson, Superintendent schools of Andover, Mass. The discussion was opened by Dr.

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*For assistance in collecting items of interest for this department, the Review is indebted to Miss Rebecca Stoneroad, Washington, D. C.; Miss Jessie H. Bancroft, Brooklyn, N. Y.; Miss Blanche E. Treat, Lake Forest, Ill., and others.—Ed.

Fitz of Harvard University, followed by Mr. Ballard, Flushing, N. Y., Miss Wiggins, Salt Lake City, and Miss Stoneroad, Washington, D. C.

The committee on nominations reported the following for officers for the ensuing year: President, Dr. George W. Fitz, Cambridge, Mass.; first vice president, Dr. William O. Krohn, Illinois Hospital for the Insane; second vice president, Miss Ellen Le Garde, Providence, R. I.; secretary, Miss R. Stoneroad, Washington, D. C.

To confer with the local committee at our next annual meeting Miss R. Anna Morris, Cleveland, O., Miss Mabel Pray, Toledo, O., and Mr. Robert Krohn, Portland, Oregon, were appointed.

The social features of the occasion were not neglected. Early in the week a reception was given by the physical training committee, at which the members of this department had an opportunity to become acquainted with and meet most of the prominent educators in attendance at the convention. A perfect July morning made the bicycle trip through the beautiful grounds of the Soldiers' Home one long to be remembered by the participants.

REBECCA STONEROAD,
Acting Secretary.

BALTIMORE PHYSICAL EDUCATION SOCIETY.

Organized in March, 1898.

Objects: The mutual study and discussion of every-day problems in Physical Training, and the advancement of this educational branch in the schools of Maryland.

Members: Mr. Schuyler B. Moon, Dr. W. A. Jackson, C. F. E. Schulz, Charles W. Sultan, Thomas Cornelius, Mr. Becket, Dr. E. M. Schaeffer, Drs. Mary Sherwood, Lilian Welsh, Misses Wright, Palmquist, Gihl, Erickson, Porter, Hazen, Nunn, McLean, etc.

The Society meets once a month and is growing in membership outside of Baltimore City; it has recently added a member from Port Deposit and one from Westminster.

Physical Training is being introduced into the public schools of Baltimore by Mr. Schulz and Mr. Sultan, and eight female assistants.

Quite a number of the private schools are enlarging their gymnastic equipment.

NEW YORK STATE TEACHERS' ASSOCIATION.

The meetings of the Physical Education Section of the New York State Teachers' Association, were held in the old auditorium of the Central Church, July 6 and 7, 1898.

Miss Sophie J. Nicolai, Supervisor of Physical Education in the Boroughs of Manhattan and the Bronx, New York City, had the work in charge, and presided as chairman. Miss Jennie J. Goetz, Borough of Manhattan, acted as secretary.

The meeting on July 6, opened promptly at the close of the General Meeting, at 11.20 a. m., with an attendance of one hundred and twenty-five. The introductory address was given by Miss Nicolai, who cordially welcomed those present, especially those not already known to her, and then described briefly the work of Physical Education as carried on in the New York City Public Schools. Miss Nicolai observed that one great object of the lessons given in the Gymnasia, was the cultivation of will and thought. In any subject, concentration of thought is the thing most essential for the growth of that subject. A lesson in Gymnastics affords a means of transmitting thought in such a way that the pupils are able to execute a movement simply by description on the part of the teacher, and not by imitation. The educational value of class exercise depends on the ability of the teacher to transmit his or her thoughts so clearly, that the pupil cannot fail to properly execute the movements desired. Since one function of the brain is to control muscular activity, exercise taken in this way develops not only muscular tissue but gives a mind training, the value of which can not be over-estimated. Habits of attention formed in one lesson, make the mastery of all other branches of study easier for the child. "Doing" follows naturally the thought.

Miss Nicolai gave a practical illustration of the work, by instructing for twenty minutes, a class of boys who were made acquainted with the method for the first time.

After the dismissal of the class, Miss Nicolai introduced Miss Jessie H. Bancroft, Director of Physical Training in the Public Schools of Brooklyn, who gave an interesting and carefully analytical address on "Some Essentials of Physical Training in Public Schools."

The meeting adjourned at 12.30 p. m.

The second meeting on July 7, was called to order by Miss Nicolai at 11.30 a. m., with an attendance of 50.

Miss Nicolai introduced Miss Mary Cecil Freeston, Director of Physical Training in the High School for Boys and Girls, Borough of the Bronx, New York, who read a paper on "Physical Education as a Basis for Vocal Expression." The paper was followed by an interesting discussion for five minutes.

The second and last paper was on "Psychical and Ethical Elements in Physical Training," by William G. Anderson, M.D., Associate Director of Yale University Gymnasium, and Principal of the Chautauqua School of Physical Education. The meeting adjourned at 12.45 p. m.

JENNIE J. GOETZ,
Secretary.

THE New York Turn Verein moved on Thanksgiving day from its old quarters in East Fourth street to a handsome new home at Lexington avenue and Eighty-fifth street.

The new building is four stories in height and cost, with the lot, $200,000. The first floor is occupied by kitchen, dining and reception rooms; the second by six classrooms; the third by the ballroom, and the fourth by the gymnasium.

The following announcement of an examination for teachers of physical training for the public schools of the City of New York was issued on October 19, 1898:

"A written examination of applicants for licenses as teachers of physical training in the Boroughs of Manhattan and Bronx, Brooklyn, Queens and Richmond, will be conducted by the Board of Examiners, on Thursday, November 3, 1898, commencing at 9.30 a. m., at 421 Broome street; and an oral examination of the same applicants, at the call of the Board of Examiners.

A. Each applicant must be at least 18 years old, of good moral character, and must show ability to use the English language correctly both in writing and in speech.

B. Each applicant must be a graduate from a High School or an institution of equal or higher rank, or possess an equivalent education.

C. Each applicant must be a graduate from a professional course of at least one year in physical training.

D. Each applicant must have had one year's experience in teaching his specialty. (Applicants for licenses to teach in Manhattan and Bronx must have had three years' experience in teaching physical training.)

E. Each applicant must pass a written and an oral examination. The written examination will be upon

(*a*) English language;
(*b*) anatomy, physiology and hygiene;
(*c*) systems of physical education;
(*d*) gymnastic games;
(*e*) the principles and practice of physical training, including methods of instruction, discipline and class management;
(*f*) elementary principles of voice-building.

The oral examination will include a practical test with a class in physical training.

Any candidate who has planned a course of study, or prepared a paper involving research, or executed a project in his specialty, may submit the same as a part of the written examination.

A supplementary academic examination will be required of all candidates, whatever their academic history, who, in the judgment of the Board of Examiners, require such a test.

The licenses issued under these regulations hold for the period of one year, and may be renewed for two successive years, without examination, in case the work of the holder is satisfactory to the Borough Superintendent. At the close of the third year of continuous successful service, the City Superintendent may make the license permanent.

GENERAL INSTRUCTIONS AND REGULATIONS REGARDING EXAMINATIONS.

1. Candidates must file with their applications evidence of possessing qualifications marked "A," "B," "C" and "D" in the above notice.

2. Each applicant for a license to teach in Manhattan and Bronx, or in Queens, is required, within ten days after the date of the examination, to report for a physical examination to one of the authorized physicians of these Boroughs. Applicants for licenses to teach in Brooklyn, or in Richmond, may report to any physician of good standing."

Thirty-eight applicants, representing all of the leading normal schools of physical training, were admitted to the examination. The results have not, at this writing, been announced.

All who pass will be placed upon an eligible list from which future appointments will be made. In the Boroughs of Manhattan and the Bronx, these appointments will be upon the competitive principle, those passing the highest receiving the first appointments. In the Boroughs of Brooklyn, Queens and Richmond, this competitive element will not be required, some choice being left to the appointing power.

Five assistants to the present Directors are to be appointed at once in Manhattan and eight in Queens. The salaries will start at $1,000 and increase to a maximum of $1,200, or $1,250.

THE new gymnasium and swimming-pool for Columbia University, on Morningside Heights, New York, are said to be the largest possessed by any educational institution in the world. The gymnasium is 170 feet broad, 130 feet deep, and 35 feet high. The running track is 22 feet from the floor, 11 feet wide and 10 laps to the mile. The swimming-tank is one hundred feet in diameter.

Physical training is compulsory for all freshmen and sophomores in the arts and mines courses, and every student must learn to swim. Dr. Watson L. Savage is the physical director at Columbia, though he still retains a supervisory interest in the Dr. Savage Institute. M. T. Hayes is his Secretary and General Superintendent of the floor. Gustave Bojus will act as floor instructor, and Augustus Holroyd as swimming instructor.

The city of New York in June appropriated $15,000 for public school playgrounds and vacation schools during the summer months in the Boroughs of Manhattan and Bronx, and $5,000 for playgrounds in Brooklyn. The yards of twenty schools were opened in Manhattan and Bronx, and of ten in Brooklyn. They were all under the care of teachers licensed by the City Superintendent and were liberally equipped for the children's entertainment. The work was organized and directed, very largely in Manhattan, and wholly in Broklyn, by the physical training department of the public schools.

Lewis Institute and Lake Forest University will use the same rules for basket-ball, and all teams playing with them must conform to these. The rules will be very similar to those in use at Smith College.

A class in heavy work is to be formed for members of the Chicago Society of Physical Education, under the leadership of Mr. DeGroot of Lewis Institute.

Through the kindness of Mr. Delavan Smith, Lake Forest University has been provided with two hundred dollars' worth of new apparatus.

The following publications are exchanged with the REVIEW:
Education, Boston, Mass.
La Gymnastique Française, Paris, France.
The Gymnasium, Exeter Hall, Strand, London, England.
The Health Magazine, Baltimore, Md.
Health Culture, New York, N. Y.
Bullétin de Enseñanza Primaria, Montevideo, Uraguay.
The Teachers' Institute, New York, N. Y.
Mind and Body, Milwaukee, Wis.
Amerikanische Turnzeitung, Milwaukee, Wis.
The Mother's Voice, New York, N. Y.
Journal of Pedagogy, Syracuse, N. Y.

BOOK NOTICES AND BIBLIOGRAPHY.

The Genesis and Dissolution of the Faculty of Speech: A Clinical and Psychological Study of Aphasia. By Joseph Collins, M.D. New York: The Macmillan Co. 1898. pp. 432.

This comprehensive study of aphasia makes permanent contributions to several departments of medical and psychological thought. It opens with a splendid historical survey of the labors of Broca, Wernicke, Seguin, Trousseau, Kussmaul, Hughlings, Jackson, Charcot, Dejerine, and Ross; and the clearness and fairness with which he summarizes the labors of earlier investigators serve as guarantees of the author's depth of critical insight and judicial fairness. This chapter is so well done that it might be read with profit by the writers of scientific treatises generally, and especially by those who traverse occult fields.

In estimating the value of the bequests to the understanding of aphasia, Broca, as the author points out, must be accorded the largest meed of praise since it was he who first indicated the seat of the faculty of language and the location of the lesion that interfered with its production. It was Wernicke, however, who furnished a basis for the modern conception of sensory aphasia by his interpretation of the phenomena of word blindness and deafness. Charcot's explanation of aphasia, based on an apparent psychological analysis of speech, did more to prevent the true interpretation of aphasia, says Dr. Collins, than any writer who has essayed to illumine the subject. His renown was so great as a physician that his utterances were considered *ex cathedra* and accepted as truth before they had received the corroboration and substantiation of others. Charcot, it will be recalled, taught that speech centres were in pairs, two for the reception of information—the auditory and the visual—and two for the emission of impulses presenting ideas—the articulate speech centre and the graphic motor centre; and that these centres acted autonomously.

All modern psychology, physiology and pathology, Dr. Collins points out, are in accord in denying the autonomous existence of any one of these centres, and in asserting the absence of the fourth —the graphic motor centre. The hypothesis which Charcot framed for the explanation of speech was certainly unfortunate, as Dr. Collins shows, and his theory, that memories of impressions were stored up in individual centres, without accurate basis. Abundant evidence is adduced to show that there is no graphic motor centre for the registration and the regulation of writing movements.

In view of the confusion of many writers in classifying the different kinds of aphasia, the scheme of classification adopted by Dr. Collins will not be without interest. He notes (1) true aphasia, that is, aphasia of apperception, due to lesion of any constituent in the zone of language. If due to lesion in the visual areas and centres, it is visual aphasia; in the auditory areas and centres, auditory aphasia; in the centre in which are stored memories of the movements necessary to externalize the word by speech, articulatory kinæsthetic aphasia. (2) Sensory aphasia, due to lesion of the central and peripheral paths leading to the zone of language. (3) Motor aphasia, due to lesion of the motor pathways over which motor impulses travel in passing to the peripheral speech musculature. (4) Compound aphasia, due to a combination of two or more of these associative or transcortical aphasia, the author classifies with sensory aphasia, the variations being in accordance with the location of the lesion between the speech areas in the zone of language.

In his diagnosis of speech disturbances, as well as his special treatment of sensory and motor aphasia, the author is simple, clear and thorough; and his remarks on the treatment of aphasia and the medico-legal aspects of the subject must prove alike helpful to the layman and the alienist. The book ought to find a place in the library of every normal school and college in America where psychology and pedagogy are scientifically studied; and those who instruct in the psychology of reading and writing can scarcely afford to be unfamiliar with its contents. Although dealing with a highly technical problem, Dr. Collins everywhere in his book betrays evidence of the highest pedagogic art in unfolding and clarifying the technicalities of his theme. Numerous clinical cases are cited; there are a number of helpful illustrative drawings and figures, and the book has a good index.

WILL S. MONROE.

Guide du Maitre chargé de l'enseignement des Exercices Physiques dans les Ecoles publiques et privées par Georges Demeny. pp. 157. Illustrations, 289. Société d'Editions Scientifiques, 1899.

This little manual of gymnastic exercises for public schools is worth more than a passing notice, not so much for what it contains as for what it suggests.

Its author is George Demeny, Director of Physical Education in the city of Paris, and late head of the Physiological Laboratory of the College of France. It will be remembered that Professor Demeny was one of the Commissioners of Gymnastics appointed by the Minister of Public Instruction to inquire into the different systems of physical exercises, and to make recommendations to the government. The Commission were much impressd by certain physical exercises which they saw practiced in Sweden, especially those which use the trunk of the body bent at different angles for resistance, and those which tend to secure and maintain correct positions.

These features and others which the Commission saw in Sweden were so highly commended, in their published report, that it was confidently expected that the French government would adopt the Swedish system of gymnastics in their public schools.

With these facts in view it is interesting to scan the pages of this practical handbook which is published as a guide to teachers in the public and private schools of France.

The book starts out with a few valuable hints and suggestions in personal hygiene. Then follows a series of simple marches, figure marches, balance movements with and without apparatus, free exercises, swimming movements, antagonistic exercises, including tug of war in standing position, horizontal and inclined ladders, horizontal and parallel bars, jumping of various kinds, and dancing, including the waltz, polka and mazurka. The book closes with a description of a series of respiratory exercises.

The selection, order and arrangement of exercises in the book are excellent, and the illustrations, though not elaborate, are sufficient. It is pleasing to notice that the book is written from a physiological standpoint, and that an attempt is made to compile groups of exercises that will meet the various demands of organism. Human bodies in France would seem to be constructed along the same lines as those we find in our own country and it is interesting to observe that the same methods are employed, by some of us at least, to produce the same desirable results.

D. A. S.

Exercises upon the Horse, Parallel Bars and Horizontal Bar. Arranged by G. W. Ehler, C. E. and A. B. Wegener, B.S. pp. 2-116. The Young Men's Christian Association of Chicago, Ill.

This little book, as the title indicates, is a compilation of exercises upon the Horse, Parallel Bars and Horizontal Bar. The book is not bound, but each sheet is separate though the exercises follow in regular order and in progressive series. Each sheet has a lesson complete on some one of the above mentioned pieces of apparatus. As an aid to the conducting of squad work on several pieces of apparatus with two or three grades of proficiency, this arrangement of exercises on printed sheets which can be readily distributed to the different leaders is admirable. As a means of preserving the exercises in order for ready selection it would have been more convenient if each sheet had been numbered. The adoption of single sheets or cards for separate exercises is an excellent idea, however, for a long time put in practice by the German Turners. The contents of the book are admirably systematized and arranged, and for those who understand the nomenclature, the exercises thus simplified and carefully graded will be gladly welcomed.

D. A. S.

LIST OF PUBLICATIONS OF THE A. A. A. P. E.

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*The American Physical Education Review is published quarterly p. 256) in March, June, September and December. Subscriptions, $1.50 r year, $0.50 per number (free to members of the A. A. A. P. E. who e paid dues for the current year) should be sent to G. W. Fitz, bridge, Mass.

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AN OUTLINE OF THE DEVELOPMENT OF PHYSICAL TRAINING IN GERMANY IN MODERN TIMES.

I. THE PERIOD OF PHILANTHROPINISM.

FRED E. LEONARD
Oberlin, Ohio.

PREPARING THE WAY FOR THE PHILANTHROPINISTS.

Physical training was not altogether a lost art nor had its utility been entirely forgotten when toward the end of the last century Basedow and Salzmann made it an essential part of the plan of education in their philanthropinistic institutions. Philologists and students of ancient art* kept alive the knowledge of Greek gymnastics; the schools for young noblemen (*Ritterschulen, Adelsakademien*) opened in various Continental countries in the sixteenth and following centuries employed professional teachers of riding, fencing, dancing and vaulting the (living) horse, and there were in existence German and other manuals of instruction in these arts; physicians and writers on educational subjects repeatedly called attention to the importance of bodily exercise in preserving health and developing character.

Dr. Karl Wassmannsdorff has described in the *Deutsche Turn-*

---

*Winckelmann's Geschichte der Kunst der Altertums appeared in 1764.

zeitung[*] two of the oldest German *Ritterschulen*, the first founded in 1575 at Selz, in Alsace, and the second the *Collegium Illustre* at Tübingen, Württemberg, opened in 1594. Christian IV. of Denmark followed the same pattern when he founded a school at Soröe, in Zealand, in 1623. In addition to teachers for the literary branches he appointed a riding-master, who also gave instruction in tilting at the ring and at the quintain, a fencing-master, a dancing-master, a master of gymnastics, a part of whose duties it was to teach the proper handling of weapons, and a special teacher of various games of ball. It was in this very school for young Danish noblemen that Basedow, the founder of the Philanthropinum at Dessau, passed eight years of his life as professor of moral philosophy and belles-lettres. In 1705 another school of the same sort was opened in Berlin.

The Italian physician Hieronymus Mercurialis (1530-1606) published the first edition of his treatise, *De Arte Gymnastica* in Venice in 1569, dedicating it to the Emperor Maximilian II., and at intervals for more than a hundred years other editions appeared, in Venice, Paris and Amsterdam. Francis Fuller's "*Medicina Gymnastica:* or a Treatise concerning the Power of Exercise with Respect to the animal Oeconomy and the great Necessity of it in the Cure of Several Distempers" was published in London in 1705, and a German translation, "after the sixth edition," appeared at Lemgo in 1750.[†] Clemens Joseph Tissot (1750-1826), a French physician, published in Paris in 1780 his *Gymnastique médicinale et chirurgicale*, an essay on the utility of movement and the different exercises of the body in the cure of disease. A German translation of the work appeared at Leipsic in 1782. Another French physician, Simon André Tissot (1728-1796), had previously published a book on the health of the literary class.[‡] and this also was translated into German (Zürich, 1768, 1769, 1775). In 1701 a famous German physician, Friedrich Hoffmann (1660-1742), referred to several times by GutsMuths in his "Gymnastics for the Young," published in Latin an essay "On movement, the best medicine for the body."[§] Eighteen years later several of his articles on the hygienic influence of exercise appeared at Halle under the title "A setting forth of the incomparable advantages of movement and of bodily exercises, and how they are to be employed for the preservation of health."* Zückert, a Berlin physician quoted by Basedow in his *Methodenbuch*, writing on the hygiene of infancy and childhood,† mentions various bodily exercises, such as wrestling, dancing, riding, vaulting, bowling, skating and swimming. Other works similar to those mentioned above will be found described in an article by Dr. Karl Wassmannsdorff on "Medical influence on the so-called revival of bodily exercises in Germany," *Neue Jahrbücher für die Turnkunst*, 1869, p. 111.

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[*] 1870, p. 75. Reprinted in Hirth's Das gesamte Turnwesen, 2nd edition, 1893, vol. I, p. 288.

[†] The book is discussed by Friedrich, Neue Jahrbücher für die Turnkunst, 1857, pp. 44, 113.

[‡] De la santé des gens de lettres. Lausanne, 1768.

[§] De motu, optimâ corporis medicinâ.

Conspicuous among the writings on educational subjects which prepared the way for the Philanthropinists are Montaigne's *Essais* (1580), John Locke's "Thoughts on Education" (1693), and Jean Jacques Rousseau's *Emile* (1762). Most writers have followed Raumer's *Geschichte der Pädagogik* in emphasizing disproportionately the influence of these works in bringing about the introduction of physical training into modern school life. Other less known authors who commended physical training are Johann Georg Sulzer, the second edition of whose essay on the education of children‡ was published anonymously in Zürich in 1748; and Diakonus Brechter, in his *Anmerkungen über das Basedowische Elementarwerk* (Zürich, 1772), and *Briefen über den Aemil des Herrn Rousseau* (Zürich, 1773).

THE DESSAU PHILANTHROPINUM (1774-1793).

Johann Bernhard Basedow,§ "the father of Philanthropinism," had before his eyes for eight years, in the school for young noblemen at Soröe, a living demonstration of the practicability of combining physical with mental training. His first book, written during that period, contains rules for promoting the health of children. While he was teaching at Altona, and after thoughts of reform in school-life had begun to fill his mind, Rousseau's *Emile* appeared, and must have influenced him profoundly. In 1768 he gave up teaching to devote himself wholly to the improvement of education, and in the same year published the announcement of an "elementary book of human knowledge," inviting public aid for the undertaking. He had for some years looked forward to founding a model-school which should embody his ideas and challenge the attention of educators, and where among other innovations physical training should be restored to its rightful place. The support of the Duke of Anhalt, at whose invitation he removed to Dessau in 1771, enabled him to realize the project, and on the 27th of December, 1774, the same year in which the *Elementarwerk* was completed, he opened his private academy, called by him the *Philanthropinum*. According to the prospectus issued the same month, five hours a day were to be allotted to studies, three hours to recreation in fencing, riding, dancing, music, etc., and two hours to manual labor. He promises that if the numbers are sufficient and the ages suitable, there will be drill in military positions and movements, and frequent marches on foot; he also hopes to have the school dwell under tents in the field for two months of the summer, affording opportunities for hunting, fishing, boating, bathing, climbing and jumping, as well as for the study of geography and the natural sciences.

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*Vorstellung des unvergleichlichen Nutzens der Bewegung und Leibes-Uebungen und wie man sich derselben zur Erhaltung der Gesundheit zu bedienen habe.

†Diätetische Pflege der Säuglinge and Diätetische Erziehung der Kinder, Berlin, 1764 and 1765.

‡Versuch einiger vernünftigen Gedanken von der Auferziehung und Unterweisung der Kinder.

§Born in Hamburg on the 11th of September, 1723, the son of a wigmaker. Attended the Gymnasium in his native city, studied theology in Leipsic 1744-1746, and later became private tutor in the family of Herr von Quaalen in Holstein. 1753-1761 professor of moral philosophy and belles-lettres in the Ritterakademie at Soröe, Zealand. 1761-1768 teacher in the Gymnasium at Altona, near Hamburg. 1771 invited to Dessau by Prince Leopold Friedrich Franz. After 1778 he lived by turns in Leipsic, Dessau, Halle and Magdeburg, and died in Magdeburg on the 25th of July, 1790. His published works include: Praktische Philosophie für alle Stände (1758), Methodenbuch für Väter und Mütter der Familien und Völker (1770), and the Elementarwerk in four volumes (1774).

A "public examination" was held May 13th to 15th, 1776, which educators from all quarters were invited to attend. This aroused great interest in the school, but it also revealed the fact that however much parents might approve the change in methods, they were not willing to subject their own children to experiments; for at that time the pupils numbered only fifteen, including Basedow's daughter. Twelve of them were between seven and eight years of age and the rest were older. Basedow resigned his position at the head of the institution in October of 1776, and the clergyman Joachim Heinrich Campe (1746-1818) became his successor. The next year, moved by signs of returning prosperity, he again took up the office, sharing it with Campe, and after the latter's departure in September, 1777, Basedow became "director of instruction" in the "Dessau Educational Institute," as it was now named; but he retained this position only till the following Easter, when he gave up his connection with the school altogether and finally. Christian Hinrich Wolke (1741-1825), associated with Basedow in the publication of the *Elementarwerk*, had been the leading teacher and the mainstay of the Philanthropinum, and had managed its business affairs after the departure of Campe. He now became sole director, and devoted himself zealously to the task until 1784, when Neuendorf, a former teacher in the institution, was appointed director of all the schools in the Duke's territory, including the philanthropinistic institute. He continued in charge until it was closed in 1793, three years after Basedow's death.

Johann Friedrich Simon, a teacher in the Dessau Philanthropinum from January 2nd, 1776, till October 20th, 1777, was entrusted from the beginning with the physical education of the pupils. During his stay mention is made of weekly lessons in dancing, free instruction in fencing for the older students, and six lessons a week in the Duke's private riding-school. The latter's riding-master also gave the pupils free instruction in vaulting. Thus the so-called "knightly exercises" (*Ritter-übungen*) had all been introduced, as Basedow himself remarks, evidently recalling the school at Soröe. Lack of funds prevented as yet that provision for manual labor which he desired partly because it belonged to his plan, partly to furnish a substitute for the other exercises in bad weather. After the midday meal, if the weather permitted, there were games in the open air for two hours, under the oversight of a teacher. From two till six o'clock lesson periods and bodily exercises alternated, and the hour between six and seven was devoted partly to music, partly to dancing. In the summer of 1777 the Duke allowed the pupils to use one of the palace gardens for a playground. Simon had meanwhile introduced wedge-shaped ditches for broad-jumping, the balance-beam, and a pair of upright posts with adjustable cross-stick between them, for high-jumping. He also gave instruction in dancing, and is said to have introduced "Greek gymnastics," though what is included under this term is uncertain. He seems, however, to have added to the "knightly exercises" others more suitable for pupils of tender years, arranging them in grades for instruction by one of the regular teachers, in place of the special "masters" attached to the *Ritterschulen*.

The next teacher of gymnastics at the Philanthropinum was Johann Jakob DuToit, who was also liturgist. His connection with the school lasted from Easter, 1778, until the end came in 1793. During the fall of 1777 manual training (wood-turning, planing, cabinet-making) was added to the curriculum. An announcement of the school published in 1785 speaks of marching in time, foot-races, high- and broad-jumping, crossing ditches on a narrow plank, carrying one or more pounds' weight in the hands with the arms extended at the sides, shuttlecock, tennis or fives, playing with a large ball filled with air, bathing, dancing, riding and vaulting. The hour from eleven to twelve was set apart for these exercises and for instruction in music. The hour after dinner was free from tasks of any sort. Gardening, and excursions on foot are also mentioned. Vieth,* in alluding to the school, names a few additional exercises,—deep-jumping, skittles, rolling hoops, and see-saw.

Peter Villaume (1746-1806), in his treatise on physical training,† has supplied information concerning some of the apparatus used at the Philanthropinum, and has referred to other exercises practiced there. He speaks of having seen at Dessau broad-jumps of from ten to twelve feet made by pupils, and high-jumps of from three to four feet. The ditches for broad-jumping tapered almost to a point at the two ends, but were probably eight feet across in the middle, the pupils beginning their exercise near the ends and working gradually toward the centre as their strength and skill increased. For the high-jump two vertical poles were fixed at a distance of two and a half feet from each other in the ground, reaching about five feet above its surface; into holes bored in these, at intervals of an inch, wooden pegs were set at any desired height, and a stick resting crosswise upon the pegs furnished a barrier which would not injure the gymnast who happened to strike it with his foot. Another device was a round beam raised about four feet above the ground and fastened firmly to posts at its thick end and again near the middle, leaving the small end suspended and swaying. The pupils were taught to walk on this beam, beginning at the thick end with the teacher lending a hand from below, then gradually accustoming themselves to the feat until they were able to venture out upon the small and swaying end without assistance. The list of exercises, as reported by Villaume, also included wrestling, dancing, fencing, throwing, shooting with the bow and with firearms, singing and reading aloud, hunting, swimming, skating, excursions on foot, playing soldier, and carrying bags full of sand with the arms raised at the sides. Wolke, writing in 1780, gives some further details with reference to the last exercise. Once a day, he says, each pupil carried in his hands, with the arms stretched out horizontally at the sides, bags of sand weighing from four to eight pounds. An adult walked among the pupils, counting his steps aloud, and they noted the number when their muscles began to pain them, and the number when they were overcome with fatigue, gauging thus the daily increase in strength and endurance.

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*Encyklopädie der Leibesübungen, I., Berlin, 1794.

†Von der Bildung des Körpers in Rücksicht auf die Vollkommenheit und Glückseligkeit der Menschen, oder über die physische Erziehung insonderheit. (Campe, Allgemeine Revision des gesamten Schul- und Erziehungswesens, 1787, VIII., 213-490.

A reference in Salzmann's writings shows that DuToit also taught various exercises on the oblique ladder (walking up the rounds with the arms crossed, climbing up on the under side hand-over-hand, swinging from the rounds, etc.). It is evident that much was made of the gymnastics on apparatus, for Wolke refers to the fact that to many visitors the exercises seemed dangerous, although in ten years and among forty to sixty pupils there had been no serious accident.

PHILANTHROPINISTIC INSTITUTIONS AT MARSCHLINS (1775-1776) AND HEIDESHEIM (1777-1779).

The second philanthropinistic institution was opened at Marschlins, in Switzerland. Its patron, Ulysses von Salis, had paid a visit to Basedow at Dessau, and impressed with what he saw there, determined to remodel his own school on the new lines. Basedow declined an invitation to become its director, but recommended Karl Friedrich Bahrdt, a doctor in theology, for the position. Bahrdt spent four weeks examining the workings of the Dessau Philanthropinum, and in October of 1775 the Marschlins school entered upon its new career. The prospectus issued by the director in the following year* sets forth an elaborate series of measures intended to secure bodily improvement. These include cold bathing, dancing, fencing, wrestling, swimming, skating, camping out under tents, foot-races, high and broad jumping with and without the use of a pole, balancing exercises, weight-lifting, kite-flying, walking on stilts, ball games, sawing wood, work in the garden, and such forms of manual training as joining, wood-turning, glass-grinding, book-binding, lacquer-work and work in papier-maché. A special master of dancing and fencing and two mechanics appear upon the list of teachers. It is sad to have to relate that in his autobiography* Bahrdt confesses to the fictitious nature of much of the contents of this prospectus, asserting that at the command of his patron he had lied as never a writer did before. In May or June of 1776 he gave up the direction of the Marschlins Philanthropinum to accept a summons to Dürkheim, and soon afterwards von Salis, disappointed in the remaining teachers and in the patronage accorded his school by the public, quietly closed its doors.

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*Philanthropinischer Erziehungsplan, oder vollständige Nachricht von dem ersten wirklichen Philanthropin zu Marschlins, Frankfurt a. M. 1776.

The Count of Leiningen-Dachsburg had called Bahrdt to Dürkheim (near Mannhein) to serve as councillor of the consistory and first superintendent of the Lutheran church in his territory. Interested by what he read in the "plan of education at Marschlins," he wished its author to start a similar institution within his own domains, and offered for the purpose the neighboring castle Heidesheim, with its large garden and a courtyard of four acres shaded by lindens. Bahrdt accepted the task, hoping to profit by his own and Basedow's experiences, and opened the third Philanthropinum on the first of May, 1777. Probably the provisions for the physical development of the pupils did not differ essentially from those already described in the case of Dessau and Marschlins; for we read of gymnastic games, instruction in fencing, dancing and riding, and manual training of various kinds. The school was closed in 1779, after Bahrdt, suspended from all his offices on account of his theological views, had fled from Dürkheim to take refuge in Halle, where he died in 1792.

THE SCHNEPFENTHAL EDUCATIONAL INSTITUTE (founded in 1784).

Of the philanthropinistic schools founded toward the close of the last century, the Educational Institute at Schnepfenthal is the only one which has survived to the present day. Its founder, Christian Gotthilf Salzmann,† had been for three years a teacher in the Dessau Philanthropinum, and himself attributes much of his later success to what he saw and learned while there. The lack of an efficient head to the institution at Dessau, coupled with his growing desire to carry out independently his ideas of education, led him finally to give up his position there in order to found a new school, based upon similar principles, but differing in three particulars: (1) it was to possess a single head; (2) the pupils were to be considered members of the family of this director, and treated as such, so far as possible; (3) the school was to be located in the country, remote from city life.

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*Bahrdt: Geschichte seines Lebens, seiner Meinungen und Schicksale. Von ihm selbst geschrieben. Frankfurt a. M. 1790.

†Born at Sömmerda, near Erfurt, on the first of June, 1744, the son of a clergyman. Received his early training at home, except two years in the Gymnasium at Langensalza. At the age of 17 began the study of theology in the University of Jena, remaining there till 1764, when he returned to his home, now at Erfurt, to take charge of his younger brothers and assist his father. 1768 accepted a small country parish at a salary of eighty Thaler a year, a pittance which he eked out—he

The site selected for the new venture was Schnepfenthal, a country estate lying near Gotha, for the purchase of which Duke Ernst II. of Saxe-Gotha contributed 4,000 *Thaler*. The cornerstone of the new building was laid on the 18th of June, 1784. Before it was finished the first gymnastic teaching was begun by Salzmann and his assistant, Beutler, with his own four children and two boys whom he had brought with him from Dessau as pupils. On the 18th of July, 1785, Christian Carl Andre took up his duties as a teacher at Schnepfenthal, and to him Salzmann turned over, among other things, the direction of the gymnastic exercises and the Sunday games. His place was taken, in July of 1786, by Johann Christoph Friedrich GutsMuths,* "the patriarch and grandfather of German gymnastics," whose period of service in this capacity extended over more than fifty years. With him was associated, as teacher of vaulting and swimming

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had meanwhile married a clergyman's daughter—by resorting to agriculture. 1772 called to a church in Erfurt, and here interested himself especially in the schools and in the training of his own children. In the spring of 1781 accepted an invitation to become liturgist and teacher of religion in the Dessau Philanthropinum, where he remained till the end of February, 1784. In that same year opened his educational institute at Schnepfenthal, and continued at the head of it till his death, October 31st, 1811. *V.* Joh. Wilh. Ausfeld, Erinnerungen aus Salzmann's Leben, Schnepfenthal, 1813; 2nd ed., 1834; 3rd ed., Stuttgart, 1845.

*Born at Quedlinburg on the 9th of August, 1759. Studied in the Gymnasium of his native town, and later became private tutor in the family of Dr. Ritter, a physician. 1779 entered the University at Halle, where in addition to theology he studied mathematics, physics, history and modern languages. 1782 returned to Quedlinburg and his old position as tutor. 1785 accompanied Dr. Ritter's two sons, Johannes and Karl, to Salzmann's school at Schnepfenthal, where he was easily persuaded to remain as a teacher. Continued his activity there as teacher of gymnastics, and of geography, history and the French language, until a short time before his death, on the 21st of May, 1839.

for fifteen years, i. e., from October of 1787 until 1802, Christian Ludwig Lenz.*

Of the early physical training we learn from Salzmann's published reports.† Up to the coming of Andre there were, besides Salzmann's own children, nine pupils, three between the ages six and eight and the rest between eight and eleven. For the instruction of this small number Salzmann had associated with himself five other teachers, each of whom had special charge of two pupils. The gymnastic instruction under Andre is thus described: About eleven o'clock the children were called away from other tasks for their gymnastic lesson, which was commonly given in an open space under the oak trees shading a neighboring hillock. Here a balance-beam had been set up, like the one at Dessau, and a pair of upright poles for the high-jumping; and a similar ditch, wedge-shaped at the ends, had been dug for exercises in broad-jumping. Besides the use of these contrivances the exercises included throwing at a target, running through the long jumping-rope, pole-vaulting, long foot-marches lasting sometimes the whole hour, climbing up-hill and running down, and practice in carrying weights. When the weather was unfavorable the pupils were exercised indoors in various positions intended to teach the proper carriage of the body,—the beginnings of the later free exercises. It will be noticed that the "*Ritter-übungen*" were not yet introduced. After the mid-day meal the children were allowed the time till two o'clock for games and relaxation, and again after the evening meal games alternated with 'musical entertainments.' The whole of Sunday afternoons was set apart for amusements, excursions on foot, and games under Andre's oversight. Pupils who showed proficiency in the morning exercises were distinguished by a few oak-leaves on the hat, and as a further reward were sometimes allowed by the teacher to choose the gymnastic exercises for the next day.

In 1786, as already stated, GutsMuths succeeded Andre as teacher of gymnastics. At the same time arrangements were made with a certain Naumann, a dancing-master at Erfurt, to give instruction to the pupils for two months of each year. Exercises were not confined to the summer months, for we read: "The winter, which is usually called the saddest time of the year, was not so for us. Accustomed to all kinds of weather, we were almost daily in the open air, and only heavy down-pours of rain could keep us back. When the weather was especially bad we wandered through the woods, which are always dry; our youngsters enjoyed themselves in the snow with their sleds, or found amusement in skating on one of the many ponds close by, or on the great meadow which stretched away in front of the school buildings and was commonly covered with ice in the winter." The number of pupils had increased to sixteen in 1787, and the teachers to eight, including the dancing-master. Salzmann's report written toward the end of that year contains further particulars concerning the exercises of the pupils. "The lesson periods begin at seven o'clock in summer and eight in winter. and last till eleven. Then Herr GutsMuths takes the pupils for their gymnastic exercises. These are the following: Foot-races, vaulting, jumping across a ditch, jumping over a stick which can be raised at will, forced marches, throwing at a mark, estimating with the eye the distance from one place to another, walking on the thin edge of a plank, reading aloud out-of-doors at a certain distance, lifting with a staff a weight which is hung on it and can be moved nearer to or farther from the hands according to one's strength, skating, sliding, etc. Herr GutsMuths keeps an accurate record of all these exercises, so that he can tell to the inch and the *Quintlein* what each pupil's powers are and how much they increase from week to week. Since he is very ingenious in exercises of this sort, and since Herr Lenz has also proposed various new ones, I hope to see the number of them increased before long." The smaller children were sent to bed at nine, but the larger ones did not retire until an hour later, busying themselves meanwhile with games or some self-chosen occupation.

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*Born at Gera on the 28th of December, 1760. During part of the year 1784 was Basedow's amanuensis, and 1785-1787 teacher of Latin in the Dessau Philanthropinum. Visited Schnepfenthal in the fall of 1787 and accepted a position there as teacher of Greek and Latin, together with vaulting and swimming. 1802 became director of the Gymnasium in Nordhausen, and in 1806 accepted a similar position in Weimar. 1820 retired to private life at Schnepfenthal and died there on the 17th of May, 1833.

†Nachrichten aus Schnepfenthal für Eltern und Erzieher, Leipzig, vol. I., 1786; vol. II., 1788.

This same year (1787) we hear of riding on horseback, for the first time. As a mark of special favor a few pupils who had shown long-continued diligence and good conduct were allowed to ride, and were also taught the use of firearms. A reference made by Ausfeld, Salzmann's biographer, shows that in 1790, three years later, GutsMuths was bringing the bodily exercises of the pupils to a state of still greater perfection. In that year one of the boys accomplished a high-jump of eight feet and two inches with the pole, and was therefore crowned with an oak-wreath and borne back to the house in triumph by his fellows. During the same summer Herr Lenz offered to give instruction in swimming, and so a new exercise was added to the list. GutsMuths himself took charge of the instruction in swimming later, and also published an excellent manual of the art.*

Gardening furnished a natural means of providing exercise and training of various sorts which Salzmann was not likely to overlook. At five o'clock on midsummer mornings, when the weather permitted, the pupils were taken out to a hill near the school. This hill was at first rocky and barren, but they laid out terraces upon its sides, brought in good garden soil, divided it up into plots with Salzmann's help, and saw these develop from year to year till they supplied the school with an abundance of flowers, vegetables and fruit. Each pupil had his own patch to cultivate, and earned his pocket-money by selling his produce to the Institute. In the spring and again in the late fall they celebrated a so-called *Schanzfest*, when all marched out, singing as they went, for a picnic meal at noon, or dancing in the early evening.

Other forms of manual labor and training were early introduced. During the first year of the school Herr Schmidt, a bookbinder in the neighboring village of Waltershausen, gave instruction in his trade and in the manufacture of little boxes, pencases and baskets out of paste-board. But a more important step was taken when, in the spring of 1796, H. Blasche was called from Jena to become a teacher in the Institute. He had been obliged to give up studying for a time on grounds of health, and meanwhile found employment in all kinds of mechanical pursuits, acquiring unusual skill in the use of his hands. He continued instruction in the manufacture of articles from pasteboard, and taught the pupils to make wooden models of tools and machines used in the various handicrafts, in milling, etc. In 1801, as a sort of supplement to his "Gymnastics for the Young," GutsMuths published a book on "Mechanical avocations for youths and men, containing practical directions intended for self-instruction in the art of (wood-) turning, metal-work, and the grinding of optical glasses."* Two years after Salzmann's death (in 1811) one of the teachers, Ernest Ausfeld, was giving instruction in paste-work, wood-turning and cabinet-making.

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*Kleines Lehrbuch der Schwimmkunst zum Selbstunterricht, enthaltend eine vollständige praktische Anweisung zu allen Arten des Schwimmens nach den Grundsätzen der neuen italienischen Schule des Bernardi und der älteren Deutschen, bearbeitet und den freien Reichs-und Seestädten Hamburg, Lübeck, Bremen and ihren weisen, väterlich gesinnten Senatoren aus Gefühlen patriotischer Hochschätzung zugeeignet von GutsMuths, Mitarbeiter in der Erziehungsanstalt zu Schnepfenthal. Weimar, Industrie-Comtoir, 1798; 2nd ed., 1833.

Excursions on foot into the surrounding country were used by Salzmann as a further means of affording pleasure and useful instruction to his pupils, suggesting to us the German *Turnfahrten* and school-excursions of today. Reference has already been made to forced marches lasting for an hour or so. Now and then a whole day was passed in the open air by teachers and pupils, provisions were carried with them into the woods, and they enjoyed their lunch together at some spot selected for its special attractions. Longer journeys, from which the smaller pupils were excluded, and when a wagon attended to carry the baggage of the party, are occasionally mentioned. Thus we read of a four-days' excursion in October of 1798, undertaken by a company numbering forty-five persons; and in another year the journeys of Salzmann with his pupils amounted altogether to more than one hundred miles.

The 'potato-festival' (*Kartoffelfest*) was celebrated for the first time on the 9th of October, 1789. After several hours over their customary morning tasks pupils and teachers took hoes, spades and baskets, and went out to the potato-field. Here sacks were soon filled, and then the contents of a few baskets were washed, a fire was built in the field and a kettleful of potatoes set over it. With the help of other supplies brought from the house the meal was prepared, and the whole company picnicked out-of-doors the rest of the afternoon. Another festival, the *Kirschenfest*, was inaugurated on the 19th of July, 1802. Whenever anyone, pupil or teacher, joined the Institute, it had been the custom to set out a cherry tree to serve as a reminder, and on this occasion the fruits of many years' planting were gathered in. Christmas eve, the birthday of 'father' Salzmann, and several other occasions were marked bv similar festal celebrations. The song-book of the Institute,† besides selections intended for religious use, contains a whole series of "songs for promoting social enjoyment."

Joseph Röckl, a professor of pedagogy, passed nine days at the school in 1805, and has recorded his observations in his *Pädagogischer Reise durch Deutschland* (Dillingen, 1808). He commends the frugal diet there, the light and simple clothing, the unusually airy sleeping- and study-rooms, the regard for personal cleanliness, the active out-door life, regular walks, work in the garden, and especially the gymnastic exercises. He visited, with GutsMuths, the newly erected riding-school, the grounds for jumping and vaulting, and the swimming-pool; watched the pupils working with saw, plane and chisel, or in paste-work, under Herr Blasche; and learned of the occasional festivals and the yearly excursions undertaken by the pupils. He doubts whether anywhere in all Germany there is an educational institution which devotes more care to the physical well-being of its scholars.

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*Mechanische Nebenbeschäftigungen für Jünglinge und Männer. Altenburg, 1801; 2nd ed., 1809.

†Gesangbuch für die Erziehungsanstalt zu Schnepfenthal, 2nd ed., Schnepfenthal, 1801.

THE WRITINGS OF GUTSMUTHS.

Important as was the influence of the teaching done by GutsMuths during the more than fifty years that he remained at Schnepfenthal, yet it is much more to his writings that he owes his lasting fame; it is these that have caused writers to refer to him as "the first German teacher of gymnastics," and to Schnepfenthal as "the cradle of German gymnastics"—titles which historical accuracy might seem to require that we bestow upon Simon and the Dessau Philanthropinum. Two at least of his books, the one on gymnastics and that on games, deserve to rank as classics. His "Gymnastics for the Young,"* the first modern manual on the subject, was published in 1793.† A second edition, so much altered that it is virtually a new work, appeared in 1804.‡ The first edition is dedicated to Friedrich, Crown Prince of Denmark, "the defender of the rights of man on the Belt and the Senegal;" and to Duke Ernst of Saxe-Gotha and Altenburg, "the friend of youth and the promoter of all rational education." A summary of the table of contents will reveal the scope of the work. Volume I (pp. xviii, 256) contains Part I, divided into five chapters: 1. We are weak because it does not occur to us that we could be strong if we would; 2. Results of the common manner of education, the neglect of physical training in particular; 3. All the means hitherto employed against the consequences of effeminacy are insufficient; 4. Gymnastics proposed. Obstacles; 5. The advantages and aim of gymnastics. Volume II (pp. 257-663) contains Part II (chapters 6-14) and Part III (chapters 15-21), as follows: 6. The nature and classification of bodily exercises. The exercising-ground; 7-14 describe different forms of jumping, running, throwing, wrestling, climbing, balancing, lifting and carrying, dancing, walking and military exercises; 15. Bathing and swimming; 16. Behavior in case of fire, keeping watch, fasting; 17. Reading aloud and declaiming; 18. Exercises of the senses; 19. Summary of the exercises, according to the parts of the body which they affect; 20. Method, use of time, general rules; 21. Manual training and manual labor.

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*Gymnastik für die Jugend. Enthaltend eine praktische Anweisung zu Leibesübungen. Ein Beytrag zur nöthigsten Verbesserung der körperlichen Erziehung. Von GutsMuths, Erzieher zu Schnepfenthal. Schnepfenthal, im Verlage der Buchhandlung der Erziehungsanstalt, 1793. In two volumes, with ten copper-plates and a sheet containing eight figures.

†An English translation, in which the work is erroneously attributed to Salzmann (*v.* foot-note on p. 89 of the translation), has the following title page: "Gymnastics for Youth: or a practical guide to healthful and amusing exercises for the use of schools. An essay toward the necessary improvement of education, chiefly as it relates to the body; freely translated from the German of C. G. Salzmann, master of the academy at Schnepfenthal, and author of Elements of Morality. Illustrated with copper plates. London: Printed for J. Johnson, St. Paul's Church-yard, by Bye and Law, St. John's Square, Clerkenwell, 1800 (pp. xvi, 433)." This translation was also published in America, bearing the imprint: "Philadelphia: Printed by William Duane, No. 106 Market street, 1802."

‡Gymnastik für die Jugend, enthaltend eine praktische Anweisung zu Leibesübungen. Ein Beitrag zu nötigsten Verbesserung der körper-

The next work in time and importance is the volume on games,[*] promised in the preface of the "Gymnastics" and published three years later. A second edition appeared the same year, and a third in 1802; a fourth, revised and with a new introduction by F. W. Klumpp, in 1845; a fifth and sixth, revised by O. Schettler, with Klumpp's additions and 33 woodcuts, in 1878 and 1887. The eighth edition, edited by Dr. J. C. Lion, was published at Hof (Rudolph Lion) in 1893. In the original edition, after an introduction of 46 pages, 105 games are described, arranged in natural groups under two main heads (active games and resting games) and ten subordinate divisions depending upon the faculties which they test or tend to develop, e. g., power of observation, memory, judgment.

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lichen Erziehung. Von J. C. F. GutsMuths, Fürstlich N.-W. Hofrat und Mitarbeiter an der Erziehungsanstalt zu Schnepfenthal. Zweite durchaus umgearbeitete und stark vermehrte Ausgabe, mit 12 von dem Verfasser gezeichneten Tafeln. Schnepfenthal, in der Buchhandlung der Erziehungsanstalt, 1804.

[*] Spiele zur Uebung und Erholung des Körpers und Geistes, für die Jugend, ihre Erzieher und alle Freunde unschuldiger Jugenfreuden. Gesammelt und praktisch bearbeitet von GutsMuths, Erzieher zu Schnepfenthal. Schnepfenthal, im Verlage der Buchhandlung der Erziehungsanstalt, 1796. Frontispiece and four sheets with diagrams. Pp. xvi, 492.

Reference has already been made to the books on the art of swimming (1798), and on mechanical avocations (1801). A fifth work, the "Book of Gymnastics for the Sons of the Fatherland,"* was intended to prepare a nation of vigorous defenders for Germany in her hour of need. But meanwhile Jahn had founded his gymnastic societies, and his book, *Die deutsche Turnkunst* (1816), was already in the field; and the reaction following the War of Liberation further contributed to prevent the effect which the author desired. There is an introduction outlining the groundthought of the book, and the nature of gymnastics. Then follow a great variety of exercises in walking, marching, running, climbing, jumping and vaulting, balancing, wrestling, throwing and shooting, exercises to give suppleness to the body, bathing and swimming, and exercises of the senses. The concluding sections discuss, among other things, the best methods of arranging and teaching the exercises.

The last of this long series of valuable works is the "Catechism of Gymnastics; a manual for teachers and pupils,"† published in 1818.

VIETH'S ENCYCLOPEDIA OF BODILY EXERCISES.

Next to the writings of GutsMuths, the most important contribution to the literature of physical training during the period under discussion was made by Gerhard Ulrich Anton Vieth.‡ He had already planned a treatise on bodily exercises in their pedagogical bearings when GutsMuths's "Gymnastics" appeared, but afterwards altered the character of the work somewhat and one year later issued the first volume of his scholarly "Encyclopedia of Bodily Exercises,"[*] the second following in 1795, and the third in 1818. Volume I, "Contributions to the History of Bodily Exercises," begins with the oldest inhabitants of the world and describes the exercises of the ancient Israelites, Phœnicians, Egyptians, Persians, etc.; the Greeks and Romans; the Germans; the inhabitants of France, Spain, England, Italy, Sweden, Iceland, Russia, etc.; the modern Egyptians, Chinese, and Persians; the natives of Sumatra and Malabar, and of the South Sea Islands. In volume II, "System of Bodily Exercises," Vieth defines the meaning of the term "bodily exercises"; classifies the various exercises according to the parts of the body, and also as simple or complex, active or passive; explains their uses; emphasizes the need of instruction in bodily exercises; describes the structure of the body and the mechanics of movements; speaks of clothing; and treats of a large number of exercises in detail. Volume III, as the title indicates, is made up of additions to the two parts already published.

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*Turnbuch für die Söhne des Vaterlandes. Von Joh. Chr. Fried. GutsMuths. Mit vier Kupfertafeln-Frankfurt am Mayn, bei den Gebrüdern Wilmans. 1817.

†Katechismus der Turnkunst; ein Leitfaden für Lehrer und Schüler von J. C. F. GutsMuths (Frankfurt a. M., Gebrüder Wilmans, 1818).

‡Born at Hocksiel (northwest of Bremen, in Oldenburg) on the 8th of January, 1763, the son of a magistrate. After receiving private instruction he entered the Gelehrtenschule in Jever, and in 1781 the University of Göttingen, where he studied jurisprudence, finance and commerce, mathematics and physics, and exercised himself in fencing and vaulting. 1783 continued his studies in Leipsic and two years later returned to Jever. Here he was about to begin practice as a lawyer when he received a call to teach mathematics and the French language in the newly organized Hauptschule in Dessau (not the Philanthropinum). Entered upon the duties of this position in August of 1786. 1799 was made director of the school and inspector of the other schools of the city and its environs. 1819 appointed school-commissioner, but retained his chair of mathematics. Died on the 12th of January, 1836.

Vieth did not have GutsMuths's talent for adapting old exercises or devising new ones to meet definite educational ends and conditions, but he brought together, analyzed, and clearly described whatever others had done from the earliest times down to his own day. His knowledge of the subject was essentially critical, while that of GutsMuths was largely practical; Vieth was the scholar of this period of gymnastic history, as GutsMuths was its greatest teacher.

BIBLIOGRAPHY OF THE PERIOD.[†]

1. *Die Turnübungen in den Philanthropinen zu Dessau, Marschlins, Heidesheim und Schnepfenthal. Ein Beitrag zur Geschichte des neueren Turnwesens. Von* Dr. Karl Wassmannsdorff. *Sonderabdruck aus der deutschen Turnzeitung.* Heidelberg, Karl Groos, 1870. This pamphlet of 73 pages is indispensable. It is an elaborate and scholarly monograph, based

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[*] Versuch einer Encyklopädie der Leibesübungen. I. Beiträge zur Geschichte der Leibesübungen, Berlin, 1794; II. System der Leibesübungen, Berlin, 1795; III. Zusätze zum ersten und zweiten Theile der Encyklopädie der Leibesübungen, Leipzig, 1818.

[†] It has been found necessary to confine the present article to physical training as practiced in the philanthropinistic institutions themselves, and to the chief contributions to the literature of the subject during the period. A future article may treat of the influence which these schools and writings exerted upon the rest of Germany and beyond its borders.

upon an exhaustive study of original sources which are beyond the reach of most students.

2. *Encyklopädisches Handbuch des gesamten Turnwesens und der verwandten Gebiete. In Verbindung mit zahlreichen Fachgenossen herausgegeben von Dr. Carl Euler.* 3 volumes. Vienna and Leipsic, 1896. Articles by Dr. Karl Wassmannsdorff under the titles Schnepfenthal, Simon, DuToit, Lenz, Wolke; by O. Richter, under *Philanthropistische Erziehung*, Basedow, Salzmann, GutsMuths, Vieth; by H. Schröer, under *Philanthropine;* and others.

3. *Geschichte des Turnunterrichts. Bearbeitet von* Professor Dr. Carl Euler. Gotha, 1891. The standard German history of the subject. Chapter V, pp. 31-84, covers the period of Philanthropinism.

4. Further references than those given in the course of the present article, and by the authors mentioned above, will be found in Dr. Hans Brendicke's excellent *Grundriss zur Geschichte der Leibesübungen.* Köthen, 1882.

MENTAL FATIGUE.

HERMAN T. LUKENS
California, Pa.

I.

Physiological.—In experiments begun in 1887 Dr. Hodge demonstrated the physiological changes in nerve-cells due to fatigue. Under electric stimulation of a nerve going to spinal ganglions in frogs and cats, the nerve-cells showed a marked shrinkage, amounting, in the case of the nuclei, to forty per cent of their bulk. The cells themselves showed extreme vacuolation in the cell protoplasm. After five hours of severe work and a shrinkage of 48.8 per cent in the nucleus, recovery required twenty-four hours. Cells from the brains of sparrows and honey bees were examined in the morning and at night, and the difference was found to be more marked than could be obtained by the most extreme electrical stimulation, the nuclei having shrunk one-third. We cannot but suppose that something very similar occurs in man during mental activity. Brain-work exhausts the nerve-cells and rest is needed for their recovery. According to Mosso the exhaustion results in great part from the formation of toxic products through the nervous and muscular action. This poison is distributed by the blood and is the chief cause of fatigue.

Questionnaire Method.—In 1888 Francis Galton determined to investigate the subject of fatigue by sending out a questionnaire on the subject to teachers. The objects of his questions were, first, to determine the signs and effects of incipient fatigue in as measurable a form as possible; secondly, to hear from the teachers whether they had ever broken down from overwork, and what their own observations might be concerning their pupils and friends. From the replies, Galton concludes that experienced teachers place most dependence on the general aspect of their classes, due to a variety of small indications, such as jaded expression and abnormal skin color, strange look in the eye, as dazed, weary, fixed or lack-luster. Restlessness appears to be the commonest sign of partial fatigue. Under the title of "Measure of Fidget," he describes how he succeeded in counting the varying rate of fidget of a section of a large ordinance during the reading of a wearisome memoir. The most common movements indicative of fatigue of attention are sudden muscular movements, grimaces, frowns, compression of the lips, twitchings of the hands, face, eyes, and nervous laughter. Asymmetry of posture and unequal movements on the two sides of the body are mentioned by Dr. Warner. The arms when extended may not be on the same level, the feeble hand or other weak posture is seen, possibly with some finger twitching.* Galton further notices bad or shaky handwriting, stumbling over words in speaking or substituting one word for another. One teacher could tell from the color of the tips of the ears whether and in what way the girls in her class were suffering. If the tips were white, flaccid, and drooping, she concluded the girls were thoroughly weary in mind; if they are relaxed but purplish, she knows they are tired not from study but from struggling with their nerves.

Irritability is perhaps the commonest sign of incipient fatigue. Sleeplessness, headache, loss of memory, inability to hear in school without a painful effort and temporary blindness are sometimes caused by fatigue.

With most people the first subject to be made more difficult by fatigue is arithmetic, owing to the accuracy required in its processes. It becomes difficult or impossible to translate, the words and phrases do not come at call. With the failure of mental grasp comes also a tendency to use long words.

Of the 116 correspondents one in every five had at some period of life broken down, and they reported 59 sad cases among their pupils of prostration from overwork. Worry and fatigue are hard to distinguish, each causes the other in endless circle. Bodily fatigue is easily cured by rest, but mental fatigue leads to sleeplessness and thus renders rest difficult. Dull persons protect their own health of brain by refusing to overwork. "It is among those who are zealous and eager, who have high aims and ideas, who know themselves to be mentally gifted and are too generous to think much of their own health that the most frequent victims of overwork are chiefly found."

While overmodestly disclaiming the ability to formulate any tests of incipient mental fatigue that could be used in school work, Galton gives the following four tests as embodying the suggestions for the replies received: (1) The length of time during which neatness of execution can be sustained in performing a prolonged task. (2) Promptness and sureness of memory in simple things. (3) Common-sense arithmetical problems. (4) Reaction time.

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*Francis Warner: Mental Faculty. His description of nerve signs and of characteristic postures as in the feeble hand, nervous hand, etc., is helpful.

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The Russian alienist Sikorsky* is the first who set about the investigation and measurement of mental fatigue by purely objective methods. This was twenty years ago. The work then begun has been followed up, chiefly within the last ten years, by an increasing number of researches in Germany, France, Italy, and Austria. The main problem has been one of method. Interest still attaches largely to the various ways proposed to measure objectively the different degrees of incipient fatigue; for the value of each investigation is dependent on success in applying a means of measurement that will undoubtedly test the fatigue, without at the same time varying the amount of it.

Discussion of the Methods.—Sikorsky used the method of dictation, which has been repeated in the investigations of Oehrn (1889), Höpfner (1894), and Friedrich (1896). The recent book on *La Fatigue Intellectuelle* by Binet and Henri (1898), recommends this method as preferable to all others. The pupils are so accustomed to dictation work in school that the effects of practice are not to be feared; secondly, it is easy to count the mistakes; thirdly, there is no such ambiguity as in the other methods; lastly, the method affords an opportunity for psychological analysis of the effect of fatigue, enabling us to determine from the different character of the errors committed the difference in the fatigue produced, for example, by gymnastics and by mathematics.

Addition and multiplication of numbers have been used as a test for fatigue by Oehrn (1889), Burgerstein (1891), Laser (1894), Holmes (1895), Amberg (1896), working with Kraepelin, Friedrich (1896), Kemsies (1896), Ebbinghaus (1897), and Rivers and Kraepelin (1897).

Prof. Mosso of Turin invented and used the ergograph as a measure of both muscular and mental fatigue (1890). In the same year Lombard published his study of "The Effect of Fatigue on Voluntary Muscular Contraction" made on the ergograph. Kemsies in Berlin has since used the same apparatus in connection with his other test of mental arithmetic.

The variation in the skin sensibility as tested by the aesthesiometer has been employed by Griesbach (1895), Vannod (1896), and Wagner (1896).

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*Sikorsky. Sur les effets de la lassitude provoquée par les travaux intellectuels chez les enfants à l'âge scolaire. Annales d'hygiène publique, 1879, pp. 458-464.

The memory for numbers has been used along with other methods by Oehrn (1889) and Kraepelin, and Ebbinghaus (1897).

Practical school men objected to all of these tests in so far as they were different from regular school work and insisted that they produced a fatigue never found in ordinary schools and were consequently highly deceptive. Hence Höpfner (1894) determined to use some dictation work that had already been given in regular course without any idea at the time that it would later be used as a test. Richter (1895) used regular work in algebra and Greek paradigms, and Kemsies (1896) adopted as far as possible the normal conditions of a school period in mental arithmetic, employing the results only qualitatively as a test of fatigue. The quantitative test introduces an abnormal condition because in regular school work there is opportunity for rest and variety.

The above methods may be divided into two groups: (1) those that make use of some *physical test*, *e. g.*, the ergograph which measures muscular power and the aesthesiometer which records the degree of sensibility in the skin on the lips, forehead, etc.; (2) those that employ some *mental operation* as a means of measuring the fatigue, *e. g.*, writing from dictation, ciphering, conjugating Greek verbs, etc.

The Ergograph.—Mosso's apparatus is a modification and adaptation of Helmholtz's Myograph or muscle measurer. It consists of two parts, the arm-rest including finger stalls to isolate the middle finger and hold the others immovable, and secondly the recording apparatus (Cf. Mosso's own description of this piece of apparatus and illustrations in his *La Fatigue Intellectuelle et Physique* (p. 53ff.). Two sorts of difficulties had to be overcome: the first was completely to isolate the work of one muscle so that no other muscle could aid it, particularly when it became tired; the other difficulty consisted in keeping one end of this muscle fixed, while the other end, left loose, could record its contractions. To accomplish this all the fingers except the middle finger were inserted in metal finger stalls, the fore-arm itself being strapped to its support. The middle finger wore a ring to which the cord was attached that drew the weight over the pulley. Contractions of the middle finger were made at regular intervals (usually every two seconds). These were recorded directly on a revolving kymograph drum. The tracing shows not only the actual height each time to which the weight was lifted, but also the total movement of the weight. The total work done is expressed in kilogrammeters, found by multiplying the weight in kilograms by the total distance in meters through which the weight was lifted. Various improvements have since been made in the convenience and the accuracy of the instrument by Mosso himself, Binet, Sanford, Kraepelin, and others. These improvements, however, do not affect in any way the question of the possibility of measuring mental fatigue by the ergograph. That rests on the theory of attention as advanced by Bain, Sully, Lange, and Ribot, according to which attention is in the main a motor phenomenon. Ribot expresses himself very emphatically: "Attention consists in a coördination of muscles. It means concentration and inhibition of movements. Distraction means diffusion of movement." "If," says Mosso, "we suppress all movements we suppress attention totally." Fatigue of the muscles shows itself in the loss of power of attention, and fatigue from mental work can be measured in terms of muscular fatigue.

The studies of Mosso, Maggiora, Waller, and Lombard, have shown that muscular fatigue is largely central. In one of the experiments a muscle was worked to fatigue by voluntary stimulation, then it was made to contract by electric stimulation, which was then immediately followed by innervation from the will again. During the second period, while the muscle was still kept at work by electric stimulus, the nerve-centers rested and resumed their work in the third period, although the muscle was worked continuously. Thus, the central fatigue was, to some extent, separated from the muscular fatigue, and shown to be the greater of the two. It is then reasonable to conclude that the laws of fatigue in voluntary muscular action are really for the most part only the laws of nerve fatigue and brain fatigue, which shows itself in variation of the power of concentrating attention. This has been demonstrated by Mosso, Keller, Kemsies, and the others who have verified their results. Binet and Henri report the interesting fact, which, however, needs much further study,—that a short period of intellectual work increases the available muscular force as measured by the ergograph; while, if continued for an hour or more, the intellectual work diminishes the muscular record. On the other hand, if the intellectual activity be accompanied by lively emotion, the muscular force is augmented, although later this is followed by depression and diminution of muscular power. Kraepelin and Hoch have advanced the interesting hypothesis that the height of the lift on the ergograph record depends on the state of the muscles, while the number of lifts is dependent on the central nervous system.

We have then in the ergograph a valuable means of measuring mental fatigue, although there are many difficulties still unsolved before we can interpret with certainty the curves obtained with this apparatus. Keller and Kemsies have successfully applied this method in taking tests of school children. The latter has the further credit of employing along with it a second method, that of mental calculation as a control, thus providing for comparison of results.

The Aesthesiometer.—If the two points of the touch compasses be brought in contact with the skin on any part of the body, they will be felt as two points if they are far enough apart; if not separated sufficiently, they will be felt as only one point. In other words there is a threshhold of sensibility. This fact has been utilized by Griesbach in developing a new and most remarkable physical test of mental fatigue. In order to make the test it is necessary for the subject to concentrate his attention very strongly on the tactile sensation received. The less he can concentrate his attention the greater will be the threshhold of sensibility. The more he concentrates the nearer may the two points be brought without losing consciousness of them as two. The aesthesiometer thus becomes a measurer of the power to concentrate attention. Since, however, the power of attention varies with the fatigue and, indeed, is the most satisfactory criterion of the amount of fatigue, the aesthesiometer becomes a measurer of fatigue.

Griesbach employed the instrument in testing a large number of school children, before and after each recitation as well as on holidays and during vacation. The measurements were taken on the forehead, cheek, ball of the thumb, end of the index finger, tip of the nose, and the underlip. For comparison examination was also made in the industrial classes in the Oberrealschule at Mühlhausen (Alsace), and of apprentices in shops, learners in the spinning and weaving schools, and factory hands. Variations in the sensibility were readily traced in all of these cases, but no such changes were found as in the pupils from the gymnasium.

Vannod verified Griesbach's results in a study published as a doctor's dissertation in Berne, 1896. This was followed by a very elaborate and to all appearances a painstaking and reliable study by Dr. Ludwig Wagner of the pupils of the new gymnasium in Darmstadt. Griesbach's method was corroborated and his results confirmed. The new book by Binet and Henri accepts the method without expressing a doubt of its reliability. The method is in its nature theoretically ideal. The results are undisturbed by the influence of practice which vitiates measurements made by any other method. Kraepelin gave expression to his sanguine hopes in the success of the tests thus made.

Ebbinghaus, however, pointed out the need of critical care in the acceptance of such data. "The difficulties of reliable tests with the aesthesiometer are," he says, "as a rule, underestimated." Even if we had reliable figures, would we know what relation really exists between mental fatigue and this reduction of skin sensibility? Cattell, one of our carefullest and most conscientious investigators in America, reports that he has entirely failed to confirm Griesbach's results and declares that they seem on their face unlikely. Within the last year Griesbach's measurements have been repeated in Kraepelin's laboratory with the result of discrediting in a large degree the reliability of this method.*

Binet and Henri have applied a great number of different physical tests to the study of fatigue. Among these are the following: (1) rapidity of heart beat, (2) capillary circulation, (3) blood pressure, (4) body temperature, (5) number and shape of respiratory beats, (6) automatic muscular action, and (7) changes in nutrition as shown by a study of the urinary secretion, consumption of bread, and weight of the body. Their problem is to determine as far as possible the relation between psychical activity and physical changes in the body. They are using about seventy different tests, half of which they describe as satisfactory. This wide sweep over the whole field gives to their work a breadth and a perspective that is wanting in the case of every other investigator.

Of the psychological tests which employ some mental operation as a means of measuring the fatigue there are two sorts, (*a*) tests conducted in the convenient and controllable surroundings of the laboratory on a small number of trained adult subjects, and (*b*) tests made in the course of school work in the cramped and confused school room on a larger number of growing children.

The most important laboratory studies of fatigue are those that have been made at Heidelberg under Emil Kraepelin. He has published an important series of such studies in his "*Psychologische Arbeiten*," and has summarized his views and popularized his work in two pamphlets, "On Mental Work" (*Ueber geistige Arbeit*), and "The Question of Overpressure in School" (*Zur Ueberbürdungsfrage*).

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*Under date of January 30, 1899, Kraepelin writes: "I fully share your doubts as to the measurements of fatigue by the aesthesiometer and the ergograph and I regard Wagner's work as entirely unreliable."

In Oehrn's work in individual psychology, the subject was required (*a*) to count the letters of a printed text, (*b*) to add numbers of one figure each, (*c*) to write from dictation, (*d*) to read aloud, (*e*) to learn by heart a series of twelve figures each, and (*f*) to learn series of twelve nonsense syllables by heart. The value of applying several parallel methods to the same problem so as to be able to test results by comparison is one of the strong points in this pioneer piece of work.

Amberg, another of Kraepelin's students, began in 1896 to study the effect of rest periods in overcoming fatigue. He wanted to see how long a period of rest was needed for complete recovery from fatigue, and secondly, whether the effects of acquired practice persisted indefinitely. His method consisted in addition of numbers of one figure each. But for the purposes of control he divided each series of experiments of eight days each into two parts: on alternate odd days (1, 3, 5, 7) he worked a whole hour without interruption, on the alternate even days (2, 4, 6, 8) he worked and rested a definitely determined time. A similar piece of investigation was made by Rivers and Kraepelin in following up the work begun by Amberg. Such a work shows clearly the value of laboratory investigations into mental fatigue. This work at Heidelberg is opening up definitely conceived new problems and has already given us those clear distinctions between practice effect and fatigue effect, between weariness (*Müdigkeit*) and fatigue (*Ermüdung*), between the initial interest (*Anregung*) and the pleasure of accomplishment (*Schlussantrieb*), between duration of work (*Arbeitsdauer*) and duration of recuperation (*Erholungsdauer*), between alternation of easy and difficult (*Wechsel der Schwierigkeit*) and mere change of subject (*Gegenstandsänderung*).

Cattell has tested fatigue in the laboratory by making 1950 reactions in succession. Scripture's students have studied the effect of fatigue on monocular and binocular estimate of depth and on accommodation time, and on maximum rate of voluntary movement. Hall and Sanford's students have used various methods: (*a*) tapping, (*b*) sorting cards, (*c*)re-action (time and quality), (*d*) learning arbitrary signs, (*e*) reading, (*f*) ciphering, etc. A test was once made at Clark University on the breaking up of visual images through the influence of fatigue, but it has never been carried to any satisfactory result. Almost every psychological laboratory in the world has a large amount of material on the subject of fatigue, because nearly all experiments are influenced by fatigue which, therefore, has to be taken into account and hence becomes a matter of record. The fatigue is usually, however, of secondary importance, but the material should be made accessible and laboratory tests for fatigue should be standardized.

Of the tests made in the course of ordinary school work the earliest is that of Sikorsky before mentioned. He used 1500 dictation sentences and in counting the errors committed, he omitted all mistakes due to ignorance. The test was moreover qualitative and he classes the errors into four groups: (1) phonetic mistakes by insertion or omission of wrong letters, (2) errors in writing as *n* for *m* or *q* for *g*, (3) psychical errors, in which the pupil omits whole words or replaces them with others, (4) errors of indeterminate character.

Höpfner was the next to apply the method of dictation. He had dictated for two hours to his pupils without any intention of using it as test material. It was, therefore, in every way regular school work. The analysis of mistakes was, as before, qualitative, but Höpfner divides them with reference to their external characteristics. Friedrich employed this method along with the ciphering method of Burgerstein in order to have a double test and secure a result free from criticism.

Burgerstein set the standard of the ciphering test in his classic investigation of the "working curve of the school hour." Holmes removed some possible sources of inaccuracy by avoiding "serial errors," but after all allowance was made his results agreed with Burgerstein's. Laser applied Burgerstein's method to a test of the curve of fatigue from hour to hour. Kemsies varied the method very much by changing it to mental arithmetic, using large numbers, writing only the answers, and not working against time. The conditions were arranged to secure the best possible results under ordinary school conditions. Only the quality of the result was tested. Ebbinghaus and Friedrich have used the ciphering test in combination with other methods.

The St. Cloud Normal School, Minn., made a test of fatigue in the model school (1896) by requiring the pupils during four minutes to mark and count as many e's as possible.

Ebbinghaus (1897) used three parallel methods, ciphering, the memory span for number, and a new combination method. This investigation seems to be the strongest and most reliable piece of work yet done in the testing of actual school work. The new combination method makes use of extracts from the reading book, in which, however, single syllables and words are omitted. The pupils are to fill in the omitted parts as rapidly as possible, so as *to make sense*. The number of mistakes are counted as inversely measuring the mental power. The following is analogous to the material used by Ebbinghaus: "It —— not strange, therefore —— very good peo——s—— often find it dif——, if not i——, —— keep —— attention fixed —— a ser—— treat—— feebly a sub—— —— they have thought vigor—— —— for years, and heard able —— discuss scores —— ——," (p. 29 of "Autocrat of the Breakfast Table.") Th. Elenshans makes the suggestion that this method might be redeemed from being a mere "guessing of riddles" and at the same time be combined with the memory test by having the pupils read the complete text without omissions at an appropriate interval before making the test. The ability to complete the text would then be aided by the memory. The contribution of the latter could be measured in the same manner in which Ebbinghaus measured the memory for nonsense syllables by the number of repetitions required in their learning. This union of the memory test with the combination method of Ebbinghaus, Elsenhans proposes to call the *complication method.*

The strength of the method depends on the fact that it comes nearer than any other method to actually measuring the intellectual activity instead of merely one or another of the one-sided mechanical exercises of a portion of the mind, like counting or adding or writing from dictation. A great deal, however, depends on the way in which the material is worked over. Ebbinghaus seems to have adopted a rather arbitrary scale in making up his count of errors.

These tests of school work may be divided into the following two classes: (*a*) methods such as Burgerstein's, Höpfner's, and Kraepelin's test the fatigue caused by the test itself, while (*b*) Ebbinghaus, Richter, Friedrich and Sikorsky test the fatigue of the regular school work. This is of great importance in estimating the value of the results and in determining what is proved. Richter and Kemsies used regular school work (algebra and Greek paradigms) in testing fatigue caused by other regular school work.

The difficulty of all these methods is that they cannot be exact and yet at the same time allow the necessary freedom of work. Kemsies and Richter have tried to meet the second requirement even at the expense of exactness in the conditions of the test.

Binet and Henri favor the method of dictation as on the whole the best. Janke thinks the two best are that of dictation and that of ciphering. But the most progress toward accurate results is likely to result from using all the methods together, so that they may control and supplement each other. They are all, at best, very partial and unsatisfactory tests. Perhaps, however, of them all Ebbinghaus's (or Elsenhans's modification) gives us a truer picture of the mental condition than any other one test.

(To be concluded.)

SUMMER CAMPING FOR BOYS.*

WINTHROP T. TALBOT, M.D.

The summer camp for boys is an outcome of the desire of thoughtful parents to avoid the dangers of prolonged idleness for their sons during the long vacation, and to secure for them an active out-of-door life to strengthen their bodies and supply nervous vitality for the winter months of confined city life.

Starting in this way the camp has developed rapidly within a few years into an educational means of growing importance to our civilization. Hundreds of boys are now enjoying the never-ending delights of this nature life in place of the rare and fortunate individuals of a few years ago. Municipalities are now beginning to include the camp among their legitimate means of caring for youth and not only is its value appreciated in bodily training and development, but also its importance, during the three months hitherto wasted in our educational plan in supplying much of the instruction for which there is neither time nor suitable opportunity in the winter school. Here in the summer camp is the vacation needed by every growing lad from school and examinations and also a chance to learn the things for which he craves a knowledge; all kinds of sports and games, the handling of animals wild and domestic, the wonders of the farm and the forest, the hills, the lake and the sea, all kinds of possibilities lie open to his adventurous step in the summer camp. Is it not a pity for a boy to have to spend these three most delightful months of all the year penned up amid tenement walls, in hot streets, or even loafing on hotel piazzas, learning the instructive ways of the average mountain or seaside resort, when summer's call is to her own best mysteries!

It is impossible in this brief space to dwell upon what the democratic camp will do to smooth the rough corners of the embryo aristocrat, the budding tough or the crude, well-meaning, able boy just beginning to glorify in American manhood, nor to point out the subtle effect for good the camp may have in morals and manner. Nor is it possible to describe the educational value of summer months spent with intelligently guided interest among trees, shrubs, flowers, vines, mosses and ferns, small and large four-footed animals, birds, fishes, frogs, turtles and snakes, in studying the stars, the Northern lights, the winds, clouds, storms and sunshine, in handling tools and machinery and boats, in navigating and surveying, in determining and prospecting for the native minerals, in planting and maturing crops and making hay, and picking berries, in the fascinating marvels of up-to-date farming with its wealth of bacteriological law, the care of milk and making of butter. These aspects of the summer camp must yield precedence in this paper to the consideration of what after all is perhaps the most striking field of usefulness of the summer camp when rightly conducted, namely, the physical training and development of the growing boy.

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*Given before a conference of the Boston Physical Education Society, December 1, 1898.

The one matter which is of most importance for the health and profit of the boys is, first, that the camp should be in the near neighborhood of water, and second that the tents, huts or shanties should be situated upon an eminence away and up from the water's edge and commanding as wide a view as possible. The more dominant the view, *ceteris paribus*, the better will be the moral and mental tone of the campers.

It goes without saying that the camp will be the better for being remote from neighbors and at the same time accessible to supplies.

This attention to location simplifies the matter of drainage from the sinks, and if the dry earth closets are properly cared for the struggle for good health is half won.

Good food does not mean rich viands but wholesome victuals of excellent materials well cooked. It is needless to say that canned roast beef sans juice, sans taste, sans everything that gives it value, bacon, greasy food or coffee is fit for no camper. He needs fresh vegetables, fruit and starchy foods, fresh meat, good bread, plenty of milk and eggs. Supply at the table the sweets he needs and craves, else he will overeat on cheap candy. A lunch between an early breakfast and dinner after the swim, fills the certain want of some boys. If the food is of the right quality and the boy outdoors all the time, overeating is not a serious problem. Boys have idiosyncrasies of eating; many boys, rich and poor alike, are allowed to refuse a large class of food at home; boys who do not eat vegetables, and milk and cereals, are not rare, but the appetites of those around them, the absence of a fond mother pleading with them to try a little, and hunger, will do much to change these habits.

As to clothing, the everpresent liability of getting a wetting renders woolen garments imperative. A cotton or linen waistband remaining cold and wet about the abdomen, which has warmed and dried, is not infrequently the sole cause of a severe cold, and is always a source of discomfort. But on a hot day let the warm vital rays of the sun strike on the bare skin of the whole body if possible. A pair of swimming trunks or light flannel running pants is clothing enough. The brownest body gives the toughest nerves.

Experience has amply proved that the question of exercise and muscular development resolves itself into a question of rest and early sleep. When boys are out of doors all day long, half-past eight is not too early a time to be asleep, and ten hours in bed is none too long. If the boys have been kept occupied all day there will be no fooling at night. Those who are in charge of the boys should retire at the same time, else the sense of contentment and absolute quiet essential to deep sleep will be lost. In this connection it will suffice to say that the advisers, counsellors or faculty will find that the need for discipline will disappear, if they conform their own habits absolutely to the rules which govern the boys. This applies to smoking. On warm afternoons it is a good plan for *all* to take an hour's rest. It is desirable that no one should feel humiliated when told to lie down. Many boys require more rest than this. Boys who are growing rapidly, on whom the nervous drain is excessive, or who are unused to muscular exercise need to stay in bed for a day or two at a time occasionally, quietly and away from their companions. The camper is an individual and as such must be studied closely, not by the use of eyes and ears, but by measurements, strength-tests, tests of heart and lungs and urine, of eyes and ears, by observation of habits of eating, sleeping, digestion, motion, etc., of all that goes to make up the physical boy. These things must be noted, not only in order to put a boy on the right track for progress, but in order that comparisons of his condition with that after taking the summer's outing may be made and that his gain or loss and further need may thus be accurately known.

Growing boys thrive under long-continued, non-competitive exercise. Too much cannot be said in favor of the art of swimming for robust, physical development. Ordinarily intelligent boys, non-swimmers, are able, as experience proves, easily to learn to swim a half mile within four weeks, in July, with one practice of fifteen minutes daily. The accomplishment of distance-swims in deep water is essential to the development of confidence. That is a proud moment when the tyro emerges a little blown, replete with emotion and swallowed water, at the end of his first half-mile swim, listens to the cheers of his friends and finds that he has not only survived the awful distance, but has strength enough left almost to swim it again! Never again will he sport with the little boys on the beach, the coveted place on the raft is now his at last.

Water base-ball—a camp invention—is well adapted to give confidence in the water. The bases are rafts about four feet square, placed at distances regulated by the strength and expertness of the swimmers, the batsman and catcher standing on a larger raft. The ball is a small rubber foot-ball. The game is played by base-ball rules. Rowing in barges when the strain is not too long-continued, is admirable exercise for older boys, but paddling in the war-canoes gives better results on the waves. The war-canoe, with its demands for equilibrium, regular and concerted action without great exertion, and instant and implicit obedience, is an excellent craft for giving boys the training they need to become boatmen.

As a means of muscular development and as a requisite for land athletics the value of three minutes of regular calisthenic exercise just before breakfast is hard to over-estimate. The natural element of competition in track athletics is valuable when confined to events requiring no sustained exertion. The advantages of base-ball, tennis and the like are too trite to need emphasis here.

A week's experience of roughing it while on the march, sleeping in tents or on bare ground, carrying packs, climbing mountains, walking through rain and heat in spite of footweariness, is not over-exertion for a healthy boy, and will do more than anything else to bring up a boy's spirit and solidify his muscles. Without overstraining him the certain discovery that he is capable of exertion far beyond his credence gives a boy sincere self-confidence and exposes bumptiousness. It is of subtle and far-reaching benefit to his character and morals, and leads to a self-respect based upon personal accomplishment in which young boys of the well-to-do classes are lacking.

One of the main tests of the physical benefit which is derived from a boy's life in a well-ordered camp, lies in the endurance gained for the housed winter's work. In camp a boy gets more air, sunlight, exercise—the best means of gaining this endurance—than is possible in a more conventional life spent among older people, and is taught the best ways of doing many things with and for his body at the most receptive period of his life, which to the city-bred boy at least, means all the difference between ultimate success or failure in his struggle for life.

SOME CAUSES OF REFLEX NEUROSES IN CHILDREN.

EDGAR JAMES SWIFT
State Normal School, Stevens Point, Wis.

NOT long since the writer's attention was called to a girl of about fifteen years who, when reading, inserted words that were not in the text and omitted others that were there. On being questioned she said she was not aware that she made such mistakes, yet, on rereading the passage, words were again inserted, though not always the same.

A belief that the difficulty was physical rather than mental, led to an examination by an oculist. It was then found that the external muscle of the left eye was so much stronger than the internal, that, so soon as she fixed both eyes on a word, this eye was pulled out of range, though she was not aware of it. Through long experience with this defect the girl had unconsciously acquired the habit of ignoring the object seen with the left eye, but at times she would confuse the two objects and give her attention to this one instead of the other. Such was the case when, in reading, she inserted words that were not in the passage. She saw them with her left eye on another part of the page. This girl was already a neurasthenic and the derangement of her nerve centres was, without doubt, largely due to the strain resulting from this muscular defect. Previous to her entering the Normal School her teachers had thought her hesitating manner and mistakes due to mental incapacity. The examination that followed, of the eyes of over three hundred pupils, brought to light a number of similar cases, though not many of them were so serious.

Out of the two hundred and fifty-seven Normal School students examined, only thirty-seven had the normal vision of twenty-twentieths, and all but three of these thirty-seven manifested some error of refraction or muscular insufficiency. Five had astigmatism without hyperopia, ten hyperopia without astigmatism, and fourteen gave evidence of both defects, while nineteen had muscular insufficiency either with or without other failures.*

The frequent derangement of nerve centres at an age when the fixing of their stability should give increasing mental poise to the boy and girl, has been the occasion of a good deal of anxiety to those interested in education and of not a little investigation regarding its cause.

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*Swift, Pedagogical Seminary, October, 1897.

Child-study has two distinct lines of research, the physical and the mental, and each leads to the other. That the body and mind react upon one another is not a new discovery, but with the beginning of systematic child-study it gained new importance. So soon as educators began to take an interest in the study of child-nature it was seen that these two fields of investigation could not be separated. Whatever metaphysical belief one may hold regarding the relation of mind and body, as a student of child psychology he must regard them as coördinate factors in complete development. It is unreasonable to expect good mental work from a child whose nerve energy is being exhausted by some organ whose structural defect is constantly interfering with its functional activity. "Any excess of nervous expenditure to one organ over the normal amount which should be furnished is done at the expense of the others sooner or later."*

Child-study must be physiological at the beginning. The mind cannot reach its possible development so long as physical abnormalities drain the nerve energy.

For a hypermetropic child, reading and study are weariness and discomfort. Naturally he does not wish to study. He prefers to play. There is less eye strain in it.

Myopia is by no means the most disturbing eye defect, though it is almost the only one that receives any attention from teachers at the present time.

Hyperopia and muscle trouble are much more serious. Hypermetropic eyes are never relieved. From morning till night the strain continues, and in many cases a fixed innervation of the ciliary muscles prevents relief even during sleep. The fact that hypermetropic subjects usually have excellent vision makes this defect especially difficult to deal with, as parents and teachers are not inclined to attribute headaches and other signs of nerve exhaustion to eyes that see as well as the best. How great a strain there may be under such conditions is shown by two cases that recently came to the writer's notice.

A young man, a student, had the normal vision of twenty-twentieths. Under a mydriatic it fell to twenty one-hundredths, showing that it was only by a strong effort that he was able to accommodate for even distant objects. Objects at the near point required, of course, as much effort again, thus doubling the strain.

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*Ranney, Eye Strain in Health and Disease, p. 5.

The other case was even more exhausting to the nervous system. It was that of a young man whose vision was slightly better than normal, or twenty-twentieths plus. Under the influence of a mydriatic he was able to see only the twenty-two hundredths line.

Dr. George M. Gould, of Philadelphia, reports an interesting case of persistent subjunctival hemorrhage. "The muscular coördinations of the eyes were as perfect as they could be, and by all non-mydriatic tests both eyes were absolutely emmetropic; the visual acuity was twenty-twentieths plus."* Other oculists had "marveled at the emmetropism of his eyes, and one especially—a man of large practice and scientific ability—had repeatedly said that his was the only pair of 'mathematically perfect eyes' he had ever seen."† The cause of the hemorrhage, as Dr. Gould tells us, was a low degree of myopic reversed astigmatism. If so serious a reflex can result from astigmatism, so slight as to escape the attention of skilled specialists, the increased importance of those cases that are more marked becomes evident. "A very slight uncorrected error of refraction may be the cause of strange and serious reflexes and results, and this is especially true if it be unsymmetrical astigmatism, and still more surely if it be a low degree of myopic astigmatism, in which there is no means of escape by blunting into amblyopia, or by shunting into heterophoria, and no possibility of a ciliary muscle contraction overcoming the defect."‡

Through the courtesy of a friend, Dr. D. N. Alcorn, the writer is permitted to give the first report of what seems to be a remarkable case of reflex neurosis.

About nine years since a man came to Dr. Alcorn for examination. In the course of the inquiry the following facts were learned: During the three preceding years the patient had suffered from three attacks of what his physicians diagnosed as paralysis. For about three months after each attack the man was afflicted with sensory aphasia. He was unable to interpret written or spoken words. He could pronounce words, but they had lost their meaning for him. During the entire three years he had

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*Annals of Ophthalmology, July, 1898, p. 379.
†Ibid, p. 380.
‡Gould, Ibid, p. 382.

been unable to attend to any business. The visual acuity of his left eye was twenty-twentieths and of the right eye about six two-hundredths. Under a mydriatic the left eye manifested a slight degree of hyperopic astigmatism and the right eye a high degree of mixed astigmatism, corrected with a + 3.00s ⊂⊃ — 7.00 C axis 80°. With this correction the visual acuity of the right eye was twenty-twentieths minus. The final correction made for both eyes was: left eye + 25 C axis 180°, right eye + 3.00s ⊂⊃ —7.00 C axis 80°. The patient returned in three months and said that he had entirely recovered and was attending to his business regularly. About one week since he was again seen and reported that he had never felt any symptoms of a relapse since he began wearing the glasses nearly nine years ago, except on one or two occasions when his glasses had become twisted or when he had laid them aside for some reason.

Teachers judge the character of a pupil by his facial expression. A failure to look them in the eye, when talking to them, gives the impression of insincerity. This often does scholars serious injustice. Dr. Ranney has called attention to the fact that in extreme cases of esophoria the open and frank expression of the face seems to be wanting, while in extreme cases of exophoria there is a markedly blank expression of the face. In both cases, he tells us, it is difficult for the subject to look steadily into the eyes of the person with whom he is talking.

Other facial movements are also suggestive. The protrusion of the chin indicates kataphoria, while the withdrawal of the chin and the protrusion of the forehead is evidence of anaphoria.*

That many of the most serious nervous diseases, such as epilepsy, chorea, nervous prostration and insanity, are more often reflex than organic is now believed by the more progressive pathologists. The recognition of this fact makes necessary the careful observation of children, that possible causes of reflex diseases may be remedied before the nerve centres become habituated to abnormal action by continued irritation.

Dr. Ranney concludes, as a result of his experience, that "at least 90 per cent of chronic epileptics have been better without bromides, after a satisfactory correction of their eye defects, than they ever were when subjected to the influence of drugs." If such remarkable results have been obtained with chronic epileptics, the conclusion that in many instances the disease would have never originated, had the eye strain been relieved by correction in childhood, is certainly admissible.

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*Ranney, Eye Strain in Health and Disease, p. 68.

The recognition of the fact that so-called organic diseases are often not organic but functional reflexes, resulting from abnormal nerve impulses that have their origin in irritated nerve centres, makes the subject an important one for students of child psychology. So long as the irritation continues the centres can send out only erratic impulses which are followed by functional disorder. Naturally the child cannot do his school work. The nerve energy that the brain requires for normal activity is exhausted in attempts to meet unnatural calls made upon it by such organs as are the immediate recipients of these disordered impulses.

It is rarely the case that central derangement, which manifests itself in functional disease, is fundamental. It is the result of continued peripheral irritation and can be checked or cured by the removal of the exciting cause.

Dr. Ranney goes even farther and maintains that "many diseases, which are today commonly regarded as of bacterial origin, owe their development to some underlying cause that impaired the nervous functions, and thus rendered the patient particularly susceptible to deleterious atmospheric influences."*

Teachers should understand that unwillingness to study and a decided preference for mischievousness do not necessarily mean that the child is the incarnation of original sin or that he is possessed of the devil. The devil may be cast out by correcting the child's hyperopia. Children, who can focus their eyes for near objects only by a constant and severe effort, cannot be expected to enjoy studying.

Recently the writer's attention was called to a young man who, at ten years of age, suffered from excessive bleeding at the nose. The slightest exertion would bring blood. The child was so timid that he would not go to school alone. His nervous system was almost wrecked. Any boys' play in which he was one of the objects of sport, would cause him to burst into tears and run into the schoolroom for protection. After this had continued for a year or two, his mother decided to have his eyes examined. Excessive hyperopia was at once detected and glasses prescribed. Almost immediately the boy's whole nature changed. The bleeding at the nose ceased and he began to grow strong. In a short time his timidity disappeared and he became one of the boys, as courageous in play as any of them.

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*Ranney, Eye Strain in Health and Disease, p. 18.

During adolescence the demand for nerve force is great. Bodily changes are rapid and, with the best conditions, nerve centres are under heavy strain to supply the needed energy. When work is improperly done it uses up a great deal of energy wastefully. Irritated centres send out abnormal impulses which result in deranged functional activity of the organs. The organs strive to do their work as it should be done and in their blind effort to preserve the integrity of their activity they call for more nerve energy, but the centres, because of their derangement, are able to give them only erratic impulses.

A badly led army needs a great many more men than one commanded by a military genius. Even with overwhelming numbers it meets the enemy only to be defeated, and an urgent call is sent in for more men. But numbers will not atone for deficient leadership. In fact, their excess only adds to the confusion and demoralization. It is the same with the functional activity of organs. Deranged centres can send out only deranged impulses and these, in turn, can give only a deranged product, and, however persistent the call for more energy, it will serve only to increase the functional disorder so long as it comes from a disordered centre.

The pharyngeal vault and nasal cavities are also sources of reflex disorders.

A child with polypoid growths in the nasal cavities is not in condition to do good brain work. He is inattentive and dull. His dullness, however, is not proof of deficient mental power. He feels uncomfortable and stupid, without knowing why. His nerve energy is used up in nourishing diseased tissue, which, in turn, reacts as an irritant upon the brain, causing it to send out abnormal impulses to other organs. In this way functional derangement spreads, and no one knows what ails the boy.*

"Elsberg reports a case of chorea, occurring as a reflex, due to hypertrophic rhinitis. Similar observations have been made by J. S. Sallinger and the author. Cases of epilepsy, due to intranasal disease, have been reported by Sallinger, Fincke and myself, while a case of psychical epilepsy has been reported by F. A. McBride. Dr. North, in adding neurasthenia to the list of nasal reflexes, goes so far as to state that he has yet to see a case of neurasthenia in which there is not some catarrhal trouble."†

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*"Recent observation seems to point to a connection between certain affections of the eye and morbid conditions of the nose."—McBride, Diseases of the Throat, Nose and Ear, p. 253.

†Bosworth, Diseases of the Nose and Throat, p. 110.

The writer has learned of a young man who, when a boy, was conspicuous chiefly because of his dullness. He stopped growing and his friends lost hope, fearing he would remain dwarfed. His mouth-breathing, to which no attention had been given before, finally led to an examination by a specialist. The pharyngeal vault was found so filled with adenoid vegetation that the respiratory organs could hardly force air through. These growths were removed and the boy grew six inches during the following year. His whole mental condition underwent a marked change. He ceased to be stupid.

"The symptoms of adenoid vegetation vary according to the amount of hypertrophy and the size of the naso-pharynx. The patient usually keeps the mouth open, and thus acquires a stupid expression; snoring during sleep is common; the features are often sharp, and the palate arched. A constant tendency to catch cold exists, and the patients are often said to be absent-minded. Guye states that many children afflicted with adenoid vegetation are unable to fix their attention, and hence have difficulty in learning."*

Adenoid vegetation in the pharyngeal vault is a source of infection and is certain to affect the brain. Whether its influence on the brain is wholly due to sympathy, or to the interference with the proper drainage of the lower cells of the brain, or whether, as has been maintained, there is a fibrous connection between the Luschka's tonsil and the brain, is unimportant. That any hypertrophy in the pharyngeal vault renders children unfit for school work and causes reflex functional diseases is a fact which teachers should not overlook.

These growths, if not removed, may result in impaired hearing. "The patient often complains of tickling or scratching sensations in the throat, of snapping sounds heard during mastication or deglutition, of fatigue in listening, and difficulty in hearing during general conversation, though he may readily understand one person talking alone; and often of noises in the head and giddiness."†

"No symptom of the disease possesses greater importance, or requires more thorough appreciation and study, than that of ear complications, occurring, as they do, early in life, and at a time when only their prompt recognition may save the patient from permanent loss of hearing. The proportion of cases which escape ear trouble is small."*

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*McBride, Diseases of the Throat, Nose and Ear, p. 336.

†Ingals, Diseases of the Chest, Throat and Nasal Cavities, p. 611.

Dullness is not always caused by a poor quality of nerve tissue. A brain may be capable of a great deal more than it ever attains. Brain cells become fatigued from the waste of their energy. Willfulness, carelessness, and general irresponsibility may be caused by allowing the brain to become a centre of disorganization through peripheral irritation and by wasting nerve energy in keeping disease going. By removing the cause of central irritation you save the child this otherwise wasted energy.

If disorganization of the centres is allowed to continue, nerve derangement becomes permanent and the habit of sending out erratic impulses is fixed by the establishment of neural paths of correlated disorder.†

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*Bosworth, Diseases of the Nose and Throat, p. 302.

†The writer wishes to acknowledge his indebtedness to the friendly criticism of Dr. D. N. Alcorn of Stevens Point.

PUBLIC SCHOOL CONDITIONS, PROBLEMS AND METHODS FROM THE STANDPOINT OF PHYSICAL EDUCATION.*

MISS REBECCA STONEROAD
Washington, D. C.

Those of us who have made a study of the human organism have been strongly impressed with the fact, that at no time in the life of the individual does body training secure such lasting results as during those wonderful years of life included in the growing period. The future man in his physical and mental makeup will depend greatly upon what is done in these years, when the processes of waste and repair are most active.

Many of the conditions which affect the natural growth of the child, as food, sleep, rest, and the hygienic conditions of the home, are beyond the control of the teacher; yet it is quite possible for one who has children under his care five hours of the day, to so plan school work that physical exercise, the great essential to normal development, will render all possible aid to the child in obtaining his maximum growth, and lessen the evils incident to sedentary school life. This is merely the hygienic standpoint, and is to many, a sufficient reason for the introduction of physical training into our public schools. But it is by no means the ultimate purpose.

One of the strongest arguments in favor of physical training from the standpoint of the educator, lies in the fact that the best mental results can be obtained only when all physical aid has been rendered to the proper functioning of the nervous system. The great truth we must ever bear in mind is that physical education, like all education, is a training of the nervous system, and that all action of the mind is dependent on this nerve structure and its blood supply.

Another important reason is, that the child is obtaining control over his muscles, enabling him to do with his body. all that he may be called upon to do under ordinary circumstances. The power to do, both physically and mentally, is, after all, the great end of education. The degree of education in any one direction is shown by the ease with which we perform the mental or physical act.

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*Read before Maryland Public Health Association, May 12, 1898.

Finally, physical exercise when systematized, becomes distinctly mental training, and has a place in the public school system similar to that of manual training, which has been introduced, not merely to teach a boy how to make a table, but for the actual mental training which results from making the table.

In the best schools of the present day, the whole scheme of education is one of body and mind training. The two are going hand in hand. Many of the activities of the schoolroom are for the purpose of hand, eye and ear training. Particularly in the lower grades is this the result of the processes by which knowledge is first acquired. In other grades, singing, drawing, clay modeling, writing on the black-boards, sewing, cooking, and all other forms of manual training are modes of body training which are complemented by gymnastics, giving work to the large muscles of the trunk and legs which are ordinarily neglected. Here is where physical training fits into the public school system, binding into a perfect whole all lines of school work and completing the scheme of body training. In such schools pupils obtain an all-round physical development, resulting in an all-round mental development.

It is only in schools where physical training has been introduced as a coördinate branch of instruction, and made a part of the framework of the education of our children, that it has come to stay. Those of us who have had at heart the physical development of the child in school, along with his mental development, have been interested in watching the growth of this movement in all parts of the country. That physical education is not a fad, and has taken a permanent hold in many places, is evidenced by the fact that the city of Jamestown, N. Y., has had gymnastics in its schools for over thirty years, under the direction of a woman.

When in 1893 Mr. Boykin, of the Bureau of Education, collected statistics in regard to physical training in our public schools, he found that there were eighty-four cities which claimed to have regularly introduced gymnastics under the direction of a special teacher. Since which time, from information collected this year, thirty-five cities have been added to the list. In the five years which have intervened this means an average increase of seven cities each year. When we consider that in this later list are to be found the large cities of New York, Brooklyn, Providence, Syracuse, and your own city of Baltimore, the whole representing thousands of school children who are now receiving the benefits of regular daily physical exercise, we have reason to feel encouraged. More than this, many superintendents have written that gymnastics form a part of the curriculum, are fairly well done, and that only the matter of expense keeps them from having a special teacher.

It is quite possible for the enthusiastic teacher, who is appreciative of the value of exercise in school, and who has had some training along that line, to do much which deserves credit; yet the absence of a director of physical training is greatly to be deplored, for I believe that in a large city, where the work is compulsory and perhaps unappreciated by many of the teachers, it is impossible for this branch of instruction to thrive and grow without the fostering care of one who is constantly studying and striving to improve methods and conditions.

The work of a director of physical training in public schools, covers a much broader field than that of being merely a teacher of gymnastics. It is his duty to look into all matters pertaining to the hygienic surroundings of children in school, and to use all possible influence toward bettering conditions as they exist. Among the many things which he seeks to obtain are, good ventilation, proper arrangement of light, healthful sitting positions, separated seats so that pupils do not touch each other when sitting, adjustable seats and desks which fit the child so that his feet rest comfortably on the floor and he is not obliged to assume atrocious unhygienic positions when writing, a lessening of the number of children in one room, aisles at least twenty inches in width, separation of children's clothing in the cloak-room by means of partitions, tests of sight and hearing of all pupils, personal drinking cups for each child, filtered water, and good sanitary condition of the school buildings. These are lines of improvement along which the physical training director can wield a wonderful influence. Not that these things can be accomplished by one alone, but by interesting teachers, school officials, health officers, medical societies, health associations and civic centres, with united effort much can be done for the health of our children in school.

During this year, in the city of Washington, a group of noble women, members of the collegiate alumnæ, in connection with the civic centre, took upon themselves the onerous task of examining each school building in the city with reference to its sanitary condition. Besides this, each teacher was required to fill out a printed paper answering questions in regard to the hygiene of the school-room. The whole report, which is to appear next fall, will furnish to the citizens of Washington statistics in regard to the actual hygienic or unhygienic surroundings of our school children.

The question often arises, "What can be done to place the physical training department on a firm basis and give it a permanent place in our schools?" Considering for the present city schools, we would urge:—

First, the employment of a director, with assistants.

Second, its introduction as a coördinate branch of instruction.

Third, the introduction of a thoroughly graded course of exercises covering the years of school life, progressing with the years and growing powers of the child.

Fourth, the introduction of a course in physical training into the normal schools from which our city teachers are appointed.

Fifth, the appointment, in the board of education, of a committee on physical training, which will look after the interests of this department and urge everything favorable to its development.

Sixth, the education of the public. No support is stronger than that of public sentiment. We need to bring to our aid the strong power of the press, and to interest in all possible ways, parents, physicians and ministers, the teachers of the people, letting them know what is being done along this line.

The value of the work, as a whole, will depend upon what is done daily in the school by the regular teacher. Considering all that she is called upon to do, it is surprising how well she is able to carry on the work after a few years of training and practice. If she is a good teacher in all other departments, she is quite likely to be good in this. She knows the child mind, knows educational principles, has the brain to do intelligent work, has the tact to make it interesting, and, knowing the children as individuals, is able to work for the good of each. Of course, it is quite possible for an uninteresting teacher to make a most attractive subject in any branch of learning seem stupid, while a teacher who handles her subject skilfully and has a certain personal magnetism, can make even so uninteresting a thing as phonic drill seem fascinating. I have seen the regular teacher give gymnastics which, as regards results obtained, would be worthy of a specialist.

The question of "system" is one which has been a stumbling block to many in years past, and there is no doubt that the cause would have made greater progress had there been less contention among leaders in regard to this subject. A school superintendent wrote me, not long ago, saying: "I have met a number of teachers of physical training, in the past few years, and find little harmony in their ideas. Each thinks that any other than the system he advocates, is rather injurious than otherwise. This defect should be remedied somehow, as it tends to cause distrust of every so-called system." This once unfortunate state of affairs, we have reason to believe, is changing, so that, as we advance, our broadest educators, while they may have a preference for one system, yet are thinking less of system and more of the man back of it.

As special teachers, we should know every system, so as to do the best work in the one of which our judgment specially approves; we can be sure of our principles and proceed to be original in our methods. To be systematic in the whole, is the one great essential. The breadth of knowledge desirable to obtain the best results in the public school is overwhelming, and altogether out of proportion to the amount of salary received. The specialist should know educational principles and the psychology upon which they are based, should know all lines of school work including the kindergarten, the results of child study, school hygiene and sanitation, should be in touch with similar work being done in all parts of the world, and keep abreast of the latest and best literature on the subject. The possibilities for mental growth are never ending. With the growth of the teacher come changes in the work. For this reason, we cannot go on teaching in the same way that we taught years ago. Methods must advance with the times. Our future efforts must be and should be the outgrowth of the best thought of the workers of the present day.

Educators are strongly advocating more of the play element in all lines of primary school teaching. Education by means of play for little ones, is ideal in its method. So in our primary gymnastics it is quite possible to have the exercise playful in character. the teacher playing with the children, perhaps pretending to do things which they do outside of school, or imitating the movements of familiar animals, or playing games, the whole having some purpose in view. This is regulated play, and is the kindergarten idea carried into the primary school. The kindergarten is rapidly working its way in many parts of the country as a part of the public school system. With such play work in our primary schools, we will be connecting the plays and games of the kindergarten with our public school system.

I beg to quote from my last report to our Board of Education in regard to recess plays and games: "Plays and games form a necessary part of any general system of physical training. They supply the element of recreation. Play has the hygienic value of securing the greatest amount of physical work with the least expenditure of mental effort. Gymnastics do not take the place of play, nor does play take the place of gymnastics. For a perfect system of physical training the two should go hand in hand.

"Since the conditions of the school-room are such as to make free play impracticable in the higher grades, no better opportunity can be had to obtain this recreation than at the time of the daily recess. A few years ago there was a movement in certain parts of the country to do away with the daily recess on certain moral grounds. It would seem wiser by special attention and supervision on the part of the teacher to improve the daily recess, than to do away with an institution which offers the very best opportunity for rest, recreation and the spontaneous activity of play. Yet the school recess, as carried on, is capable of the greatest improvement. In many cases the teacher is absolutely ignorant of what her pupils are doing during this playtime. So far as observation goes, the children indulge chiefly in screaming and aimless romping, or else in moping and reading. Pupils could be taught certain games adapted to their age and to the circumstances, over which the teacher could have oversight, without interfering with the spontaneity of the children. Children should be encouraged to bring their jumping ropes and balls to school. Many pupils would be willing to contribute bean bags, a bean board, jumping ropes, and stilts.

"Whenever the weather permits, all such play should be in the open air of the playground. Having such guidance, knowing what can be done, how to do it, and having the means by which to do it, pupils can take the initiative and proceed according to taste or inclination, thereby making the daily fifteen minutes given for recess, a period of physical profit, as well as mental recreation."

It may be asked, "What proof is there that children improve physically by this work?" Unfortunately we cannot present the actual photographs of "before and after taking," nor are the lasting benefits those to be seen by the eye. Since we know comparatively little of the rates of growth of different parts of the body, it is impossible to measure with a tape line, the actual muscular gain which may be due to exercise alone in a growing child. For those who want visible proof of the good effects of physical training in a city school system, I refer to Washington, as representative of what is probably true of other cities having had such work for a number of years. The facts in evidence are:—

First, Muscular control is shown when taking up a new exercise, which would have been impossible without previous gymnastic training.

Second, The special teacher visiting a school-room is invariably able to detect the new children who have never had gymnastic work. The regular teacher smilingly remarks, by way of apology, that such a one, who is awkward with his body, has not been long in our schools.

Third, The older teachers who were in the schools ten years ago give expression to the wonderful improvement in appearance, manner and carriage of the children, and in the discipline of the schools, which they believe to be the result of training received in connection with this work.

Fourth, Comparison with city schools which have never had physical training, shows greatly to the advantage of Washington schools.

Fifth, The teachers in the High School report that each year the pupils come to them better trained than in previous years.

Sixth, Visiting educators invariably speak of the general physical appearance, the carriage of the body, and the cultivation of manners in Washington school children.

It is to be hoped that the time is not far distant when state normal schools and all schools for the training of teachers, will have in the faculty a teacher of physical training, whose work will consist not only in giving exercises to the normal class for their own physical good, but also in giving a course in public school gymnastics. This should include both the theory of teaching and actual practice in giving exercises to pupils in the practice classes. Young men and women going from these schools will leaven the whole country and carry the work into small towns, which probably never could afford the services of a special teacher.

Country schools need this work as much as city schools. Many persons have the idea that exercise is not needed here because the children get plenty of it in their outdoor life. But, more than city children, do they need the body training which comes from a course in gymnastics. To place the foot down quietly, to move with ease, to carry the body well, all require muscular control, which can and ought to be cultivated in children, whether country or city bred. These things have a reflex effect upon the individual, and increase his self-respect, much in the same way that one is affected by the wearing of good clothes.

A teacher in the country school has a rare opportunity to give those under him all the benefits to be derived from outdoor sports. By judicious choice and leadership, such games and plays could be encouraged, as have special value in developing the qualities of alertness, quickness in execution, daring, bravery and generosity.

Referring to the necessity for gymnastics in country schools, Mr. Hughes, inspector of schools in Toronto, Canada, says: "Teachers of rural schools usually excuse their neglect of drill by saying that their pupils get enough physical exercise. They forget that strength is not the only benefit resulting from exercise. Look at those lines of well drilled boys in their school-yard, ready to march into school! Five hundred manly looking fellows they are, erect in figure and graceful in action. See that boy near the centre of the second line! You could pick him out at a glance from thrice five hundred boys. How his shoulders stoop, how clumsy is his manner! He is fresh from the gymnastics of the hoe and the pitchfork. His teacher from the country stands beside us and hearing our criticisms, says: 'You need not criticise Tom. He is stronger than any other boy of his age in the line.' This may be true, but you, as his former teacher, deserve no credit for his strength, while you should receive severe censure for allowing him to grow up with a deformed body and an awkward gait. Farmers' sons and daughters are as much entitled to the physical, mental and moral benefits of calisthenics and drill as are any other children."

SWIMMING AND SWIMMING BATHS.*

M. AUGUSTA REQUA, M.D., PD.M.
New York City.

A PRINCIPAL in one of our large public schools on the East side of Manhattan Borough, New York City, informed me, that he found the boys of his school bright, wide awake, and attentive to their studies in the early fall, followed by restlessness and inattention during the winter months, and with the return of the warm days of spring, the boys again became attentive and lost their restlessness. After thinking over the matter, he came to the conclusion that these changes occurred, because the boys had the opportunity during the warm months of the year of bathing in the river; but that they were deprived of the privilege during the cold months.

There is every reason to believe that the above conclusions are correct, and therefore it is highly important that every child should have facilities for bathing. If combined with bathing we have swimming, we shall at one and the same time promote cleanliness, fine physical development, recreation, and a physical condition which aids intellectual and moral growth. "He knows neither the alphabet nor swimming," was the expression used by the Greeks to indicate deplorable ignorance. What the opinion would be, of this oft-quoted nation, with regard to us, if it could visit our city with its sparkling waters abounding on all sides, and yet with no public instruction in swimming, is more easily imagined than stated.

It seems to me, it is desirable, that we, physical educators, should know just what is being done for the masses at home and abroad, both with regard to bathing and swimming facilities, so that we may have some data of what is actually being done with regard to these important subjects and also to furnish arguments as to what can be done. An excellent report on bath-houses abroad is given by Dr. E. M. Hartwell in the Bulletin, No. 11, of the Department of Labor, July, 1897, edited by Commissioner Carroll D. Wright. In the Boroughs of Manhattan and the

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*Delivered before the Physical Education Society of New York and Vicinity, October 15, and November 16, 1898.

Bronx all information on public baths may be found in the Report of the Committee on Public Baths and Public Comfort Stations, appointed by Ex-Mayor Strong, during his administration.

In London, swimming constitutes a part of the school curriculum. Certificates are awarded to scholars who succeed in passing the schoolboard's prescribed swimming test. Swimming is understood as coming within the term "physical exercises," and physical exercises are compulsory. In Sweden and Norway the children of the "folkskolor," or people's schools, corresponding to our public schools, are given a bath once in two weeks. The arrangements for bathing that I saw in Sweden, consisted of a number of sitzbaths placed under faucets, and one large bathtub.

In the Boroughs of Manhattan and the Bronx we have a number of free baths open during the summer season; but they are closed during the winter months.

With regard to giving instruction in swimming to the children in the public schools, the Brookline Public Bath, Brookline, Mass., has, I believe, the distinction of being the first so used in the United States. Lessons in swimming are given free to the children in the high school and upper grades of the grammar schools. The town pays the expenses through the school committee.

In Boston this summer instruction was given to the public school children. Over 3,000 were taught to swim. There were 11 floating baths, 7 beach baths, 1 river bath and 2 swimming pools. The swimming classes that I visited were exceedingly interesting. The children seemed to thoroughly enjoy themselves. The following directions were given to the instructors:—

TO THE SWIMMING INSTRUCTORS.

1. Any child between nine and sixteen years of age can be admitted to the swimming classes.
2. No child should go in bathing within an hour after meals.
3. A class of ten to twelve children is to be taken every half hour.
4. Half an hour is the limit for any child to stay in the water.
5. No ducking, or other fooling, is permitted. No child should be forced into the water.
6. Always start beginners with the "land drill." The "breast" stroke with flat hands down, and the "side" stroke with the legs, being the regular strokes for all beginners.

7. When a child can swim alone, mark the date in the book, but keep him (or her) in the class and gradually teach more advanced swimming.

8. In the latter part of the season, teach how to rescue others, and also how to restore apparently drowned persons.

9. One side, or part, of the bathing house, or beach, should be devoted to the swimming school.

10. Keep good order and strict attendance.

NISSEN.

Boston, 1898.

In the new public school, the Paul Revere of Boston, it is intended to have bathing accommodations for the school children.

I understand there is some talk of heating the Recreation Piers, in Manhattan, and keeping them open during the winter months. It seems to me that arrangements might be made for warm sea-bathing at those piers. It is very important that accommodations for bathing all the year round should be established. The gain in well-being and happiness is incalculable.

Instruction in swimming should consist of a "Land Drill," "Water Drill," "Rescue Drill" and "Resuscitation Drill." If a child has received instruction in physical exercises in accordance with the Ling system and the Delsarte system, so far as it relates to physical education, it is a comparatively simple matter for him to follow the commands and explanations of any of the above drills, and his acquisition of the art is greatly facilitated.

I do not follow entirely the method of the Swedes, as given by C. H. Liedbeck, Royal Gymnastic Central Institute, Stockholm, Sweden.

"A movement consists of a commencing position, a final position and a chain of intermediate positions; and it is rendered exact when these as well as the rhythm of action are clearly and severally determined." So wrote the late Baron Posse, and as a general working plan, for a gymnastic exercise, I think it cannot be excelled. In its application to swimming, the first point to determine is, "What is the commencing position in swimming?" In the "breast stroke," I consider it as a prone lying position, arms extended fully in front, palms down, hands touching, legs and feet fully extended backward, feet closed, and head inclined backward. The commencing is also the final position, the one which is the result of the completed stroke. It can be taken in a "Land Drill," lying on the floor, or on a cushioned bench; but it should never be sustained, as it is a very trying position out of the water.

The arm movements can be taught while the children are standing. Position for swimming for the upper part of the body being commanded as follows: "For swimming—trunk—and arms—*position!* This brings the trunk into forward bend, head inclined backward, with the arms fully extended forward, palms down and hands touching. For the movement of the arms the commands are: Arm-swim—One! Two! Three! On "One" the palms are turned slightly outward and the arms drawn slowly backward and slightly downward until almost in the planes of the sides. On "Two" the arms are bent and the elbows are brought to the sides, inner edges of the hands touching; and on "Three" the arms are quickly stretched forward as far as possible. The leg movements can be taught by having the pupil stand on one leg, while exercising the other, or with the pupil lying on a bench, or in a heaving position on a vertical rope. The commands are: For swimming,—legs—Position! Leg—swim—One! Two! Three! Combinations can be made in the standing position, with one arm and one leg, or both arms and one leg; or by prone lying position on a narrow cushioned bench, both arms and legs can be practiced on the combined movements. In the combined movement, the arm movement precedes that of the leg movement, so that in indicating the rhythm of swimming, say, "Arms—legs—two—three!"

The leg movements are the most difficult, and the most important. The thighs should be drawn up with the knees widely separated, the legs completely flexed, the position of the feet unchanged. This is done on count "One." As soon as drawn up, the legs proper should fall outward so as to form right angles to the thighs, the feet changed to form right angles to the legs. The thighs are not lowered. This is done on count "Two." From this position the legs are stretched backward and together as rapidly as possible, thighs, legs and feet assuming the final position. This is done on count "Three."

There are four kinds of strokes in swimming, namely, the "breast," "side," "overhand" and "back." An analysis of the movements which enter into these various strokes gives the following preliminary exercises which should be taught before giving the Land Drill. Instruction on these exercises should be given as a part of the regular gymnastic work.

Head Exercises.—Backward bending, left and right bendings, left and right twistings.

Trunk Exercises.—Arch flexions. Left and right bendings. Backward and forward bendings.

Arm Exercises.—Forward stretching, turning palms slightly outward when arms are full extended, from this position swinging arms horizontally sideways nearly to the side plane, modified upward bendings; forward bendings—right arm stretching upwards, and at the same time to the left—reverse with the left arm—half circling in front of body, rotation, sideways sinking, modified sideways flinging, heaving movements.

Leg Exercises.—Flexion on thighs, relaxing, stretching.

Thigh Exercises.—Upward bending combined with outward rotation—stretching, adduction.

Feet Exercises.—Flexion—extension.

For the Entire Body.—Relaxing.

For the Lungs.—Respiratory exercises.

The apparatuses that simplify the Land Drill are the vertical ropes and the stall bar benches.

The regular instruction in swimming should begin with the Land Drill with the leg movements of the "breast" stroke. Emphasize the fact that the leg movement is more important than the arm movement. Teach the leg movements first by having the learner stand on one leg and go through the movements with the other. Next practise the movements of both legs with the body in a supine position, then in a heaving position on a vertical rope, and lastly in a prone lying position on a bench.

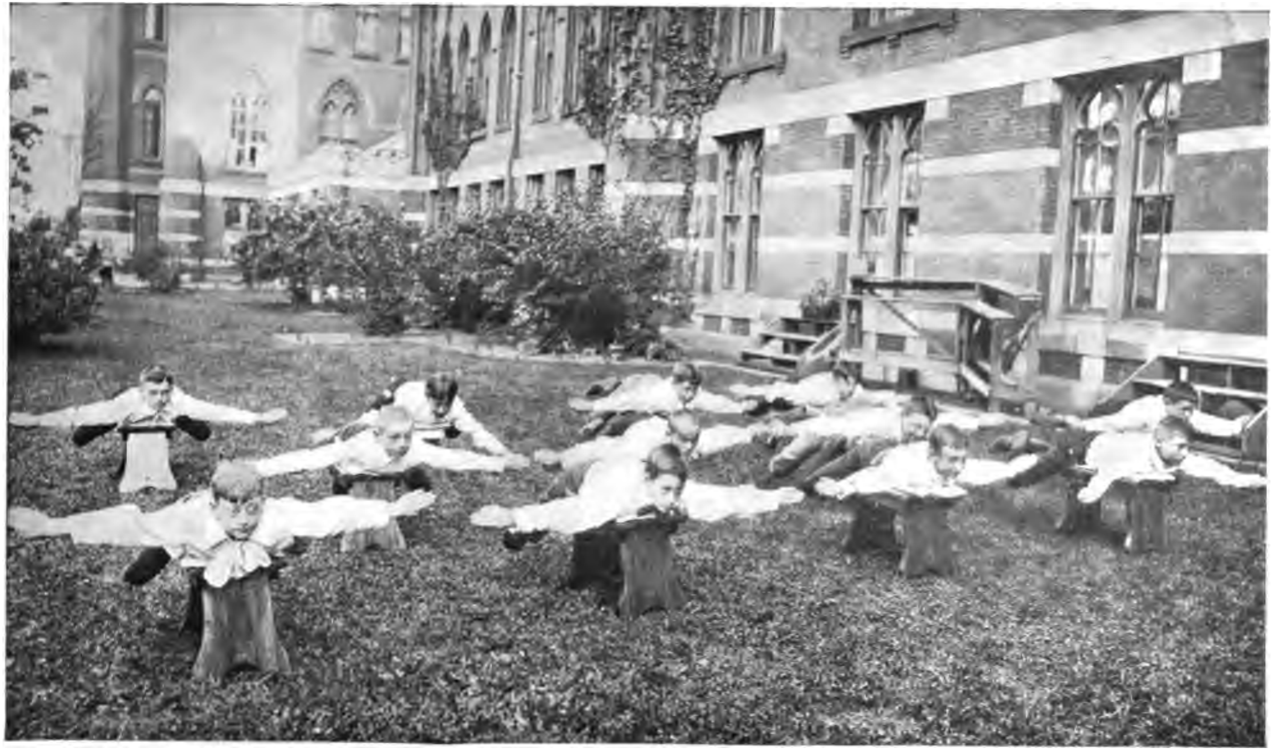
Have the learner move his legs to a rhythm which has the same length of time to each count, sometimes called an "even count," as *One! Two! Three!*

Next step, teach the arm movements, the upper part of the body in position as already explained. In counting for each part of the movement, commence with an even rhythm or count until each part is clearly understood, then follow with the regular rhythm of swimming.

In the "breast stroke," teach the pupils to inhale while arms are being drawn backward, and to exhale when the arms are stretched forward. This inhaling and exhaling is only done with each stroke when swimming very slowly.

Do not continue your instruction on the "breast stroke," after a fair degree of skill has been acquired; but teach the other strokes as far as possible in alternation; because if one stroke is taught to the exclusion of the others, it is very difficult afterwards to gain all around skill.

The "Land Drill" must be correctly taught or it is a waste of time. Its value when properly taught facilitates the instruction



LAND DRILL.

TEACHERS' MAGAZINE PUBLISHING CO., N. Y.

in the water and also strengthens the muscles used in swimming.

The first step in the "Water Drill" is to have the learner gain confidence. It is a poor plan to throw the child into the water; he may ever after have a fear of it. The teacher (unless the instruction is given in a tank) for the first few lessons should be in the water, as it inspires confidence. Belts, pulley apparatus, etc., if not judiciously used, only retard the learner.

The "Water Drill" follows the same rules as the "Land Drill," and is a simpler matter, if the "Land Drill" has been properly conducted, as the swimming positions can be easily taken.

I have already given instruction in the "Land Drill" to some of the children in our public schools, and, I expect that every spring of the year, instruction in "Land Drill" will be continued, and I hope that regular swimming lessons in the water may be provided.

QUETELET'S TREATISE ON MAN (Continued).

WILLIAM W. HASTINGS.

INFLUENCE OF MORALS UPON MORTALITY.

"Up to present time we possess few researches on the influence which morals may have on deaths, excepting in the case of violent deaths.

From preceding researches it is seen what advantage an industrious and prudent people has with respect to mortality over a depraved and indolent one. Mortality is much less in higher than in lower classes, this state of things not merely owing to abundance on the one hand and privation on the other, but also to the rational and temperate habits, more regulated passions, and less rapid transitions in their mode of living.

The violence of the passions seems to have considerable influence in shortening the life of individuals.

According to M. Benoiston de Chateauneuf the mortality of foundlings in several cities of Europe was from birth to the end of the first year—

At Petersburg, in 1788	40 per cent.
At Florence, in 1788	40 per cent.
At Barcelona, in 1780	60 per cent.
At Paris, in 1789	80 per cent.
At Dublin, in 1791	91 per cent.

From birth to four years old, at Rome, Madrid, Dublin, and Paris we find 50, 62, 76 and 98 in the 100."

Quetelet states also that—

"The principal conclusions of the work of M. de Gouroff are:—

1. That in Catholic countries, or rather in those where asylums have been opened to all children indiscriminately, who are abandoned at the time of birth, these little unfortunates are much more numerous than elsewhere.

2. That in these asylums there is a frightful mortality, and quite beyond the proportion of the greatest mortality which cuts off children even among the most indigent classes.

3. That infanticide is scarcely prevented by foundling hospitals; or rather, in order to prevent a few infanticides whether di-

rect or indirect, through the effect of unrelieved exposure, these houses do themselves destroy an incomparably greater number of children."

INFLUENCE OF KNOWLEDGE OF POLITICAL AND RELIGIOUS INSTITUTIONS UPON MORTALITY.

"At the present day it appears clearly established that in countries where civilization makes most progress, we may also observe the greatest diminution of mortality.

In the middle of last century in London the annual mortality was still one in twenty; according to census in 1821, one in forty, so that it has diminished exactly one-half. It is then correct to say that the mortality towards the end of last century had undergone an increase which may be attributed to the excessive abuse of spirituous liquors which then prevailed.

In illustration of the effect of morality upon mortality, Quetelet adduces the following conclusions as to prisoners as a class:—

"1. The mortality of prisoners is generally much greater than that of free people.

2. It is in the direct ratio of the bad management of prisons, the state of misery and nakedness of those detained therein, and the privations and sufferings which they passed through before imprisonment.

3. If the management or discipline is almost powerless in correcting these latter cases, it may always by care and understanding prevent or very much extenuate the former.

4. If, taking away the difference owing to locality and good or bad treatment, we arrange the prisoners in the order of their mortality, they stand as follows:—

Accused.
Condemned.
Detained in mendicity houses.

5. To appreciate the effects of the salubrity, or insalubrity, of the good or bad management of each prison and the different chances of life of each class of prisoners, the best means will be to determine the annual proportion of deaths, not by comparing the latter to the total number of inmates, but to their average annual population.

6. Ignorance of the lot of prisoners, of their wants, especially of the wants and the fate of the poorest of them is the first cause to which may be attributed the excessive mortality shown by the numbers we have quoted."

RELATIONS OF POPULATION TO SOCIAL PROSPERITY (CHAP. VII.

Population tends to increase in a geometrical ratio. The resistance or sum of the obstacles to its development, is, all things being equal, as the square of the rapidity with which it tends to increase.

"The means of subsistence according to Malthus can never increase quicker in an arithmetical ratio. The obstacle to population, then, is the want of food proceeding from the difference of ratio which these two qualities follow in their respective increases. When a population, in its development, has arrived at the level of its mean of subsistence, it ought to stop at this limit, from human foresight; or if it have the misfortune to overleap this limit, it must be forcibly brought back by an excess of mortality.

The obstacles to population, therefore, may be arranged under the heads; the one acts by preventing the growth of population, and the other by destroying it in proportion as it is formed. The sum of the first forms what may be called the privation obstacle, that of the second the destructive obstacle.

The obstacles to rapidity of increase of a population, really operate, like the resistances which the media oppose to the passage of bodies through them. This extension of one of the laws of physics, which is most happily confirmed when we apply it to the documents which society supplies, presents a new example of the analogies which are formed in many cases between the laws regulating material phenomena and those which apply to man."

The progression of population is either arithmetical or geometrical. The increase is so regular that the calculated and observed populations for a period of 10 years vary only slightly.

The growth of population in the United States. Observed tables by Prof. Rau compared with calculated table by Quetelet:

Years.	Observed Inhab.	Annual Increase	Calculated Inhab.	Annual Increase.
1780	2,051,000	6.2	2,051,000	6.3
1790	3,929,326	3.	3,959,220	3.7
1800	5,306,035	3.1	5,867,440	2.8
1810	7,239,703	2.87	9,775,660	2.2
1820	9,654.415	1.9	9.683.880	1.9
1825	10,438,000	1.9	10,637,990	1.9

• (See table above.)

Various tables have been constructed to show the period of years which will be necessary for the doubling of the population of the countries of Europe.

It is estimated that England should double her population in 42 years, France in 105 years. While these conclusions are not accurate, they are interesting as the basis for comparison. The slow increase of a half century ago and the gradual decrease in population of France today must be attributed largely to the prevalence of a low standard of morals and the decadence of the family idea, especially in cities.

The following are Quetelet's general conclusions as to population:—

1. In general two-thirds of the population are unmarried; the other third is composed of married persons or widowed.

2. Taking 1000 individuals of each sex the unmarried males are rather more numerous than the unmarried females.

3. The unmarried are still more numerous in country than in town; so that we find the greatest number of unmarried persons out of 1000 in the country who are males.

4. The number of widows is almost double the number of widowers.

After what has been said we see that the necessary conditions to enable us from a table of mortality to deduce a table of population, are that the deaths of each age preserve annually the same proportion to each other, whether the population be stationary, increasing, or decreasing.

1. A people may have annually figures of exactly the same value as proportional numbers of births and deaths without the average life continuing the same.

2. When, all things being equal, the mortality spares the perfect men and takes off the children, the duration of average life diminishes and vice versa: it being understood that we calculate the average life from the number of deaths.

3. The number of births, deaths, and of the average life may preserve the same value, whilst indeed the population experiences

"$a = \frac{2d}{Px + Px + n}$, Formula.

d = difference (190.822).
P = population in 1780.
X = number of years elapsed.

The population for the Xth year would then be $PX = P + dX$.

It is according to this formula that the successive increases of the population have been calculated. The increase *a* relative to the population had as a general value, or for a period of *n* years after the *Xth*."

great losses or receives great benefits, which remain unobserved.

4. To estimate suitably what a population gains or loses, it is necessary when making the division of years to establish the average life, to take into account the quality of these years and to examine whether they are productive or not.

"It is production which regulates the possible limit of the inhabitants of a country. Civilization narrows this limit and tends to increase the produce which belongs to each individual, so as to increase his well-being and secure him the means of existence.

The average duration of life, could it be exactly ascertained, would furnish us with a measure of the prudence and hygienic state of a country; the consumption of the inhabitant would give the state of civilization and the exigencies of climate; the proportional number of inhabitants keeping in view this latter measure would give that number which represents its production."

Book Second deals with the subjects of Development of Stature, Weight, Strength, etc.

"The importance of the study of these and kindred subjects is great for purely scientific reasons apart from the question of utility. It throws new light upon some of the vexed questions of legal medicine, *e. g.*, to determine the age of an individual after death from an aggregate of his physical qualities."

THE DEVELOPMENT OF THE HEIGHT.

1. The most rapid growth takes place immediately after birth. The child in the course of one year grows two decimeters (7 8-10 inches) nearly.

2. The growth of a child diminishes as its age increases until towards the age of four or five years, the period at which it reaches the maximum of probable life. Thus, during the second year after birth the growth is only 1-2 what it is during the first: and during the third year only 1-3.

3. Proceeding from the fourth or fifth year, the increase of stature becomes almost exactly regular until about the 16th year, *i. e.*, until the age of puberty and the annual increase is 0.6 millimeters (2 2-10 inches) nearly.

4. After the age of puberty the stature still continues to increase but only inconsiderably: from the 16th to the 17th year it increases four centimeters (1 5-10 in.). In the two succeeding years it increases only 2½ centimeters, or a little less than one inch: in exact numbers, .984 in.

5. The full growth of man does not seem to be attained at his 25th year.

"From the period of birth, the height or length of one sex is superior to the other; being, for boys, 0.4999 in.; for girls, 0.4896 in.; giving thus in favor of boys a trifle less than half a meter at birth. We note in an accompanying table the same acceleration of growth in girls at an earlier period than in boys, which is remarked by Bowditch and Porter in our American children, but note in contrast by Quetelet's tables that at no time are the girls taller than boys of the same age.

"M. Virey attributes the lower stature of woman to the circumstance of her arriving sooner at the age of puberty or having reached perfection, and also to her having less vital energy."

The inhabitant of towns is taller than the inhabitant of the country as shown by a table of Villermé. He states further that "human height becomes greater, and the growth takes place more rapidly, other circumstances being equal, in proportion as a country is richer, the comfort more general, houses, clothing, and nourishment better, and labors, fatigue and privations during infancy and youth less; or, in other words, the circumstances accompanying misery put off the complete development of the body and stint the human stature." That the human growth does not terminate at 19 years or even at 25 is shown by the following table:—

	Number of Individuals.		
Heights.	Of 19 years.	Of 25 years.	Of 30 years.
15 to 16 decimeters	32	17	15
16 to 17 decimeters	173	174	163
17 to 18 decimeters	92	103	109
18 to 19 decimeters	3	5	12
19 to 20 decimeters		1	1
	300	300	300

These results agree with the observations of Dr. Hitchcock at Amherst, of Dr. Hamilton G. Wey at Elmira, and with Dr. J. H. Baxter's U. S. Government reports.

There is a difference also between the heights of the different professions. Prisoners are shorter than fully developed individuals measured in Brussels. This conclusion agrees with the results of Dr. Wey's reports from the Elmira State Reformatory.

The following table is from J. W. Cowell:

Average stature of children of the lower orders of Manchester and Stockport.

	Boys		Girls	
Ages.	Working in factories.	Not working in factories.	Working in factories.	Not working in factories.
9 years	1.222	1.233	1.218	1.230
10 years	1.270	1.286	1.260	1.254
11 years	1.302	1.296	1.299	1.323
12 years	1.355	1.345	1.364	1.363
13 years	1.383	1.396	1.413	1.399
14 years	1.437	1.440	1.467	1.479
15 years	1.515	1.474	1.486	1.502
16 years	1.565	1.605	1.521	1.475
17 years	1.592	1.627	1.535	1.542
18 years	1.608	1.775	1.593	1.645

The statures of male and female children do not differ much in Belgium and in England. Until the age of puberty there is no great difference in size of the children of the lower orders whether they work in factories or not.

Complete development of stature stops more suddenly in very hot or very cold countries than in those of moderate temperature, more suddenly on plains than on mountainous heights,—where the climate is severe. Food and drink and change of climate influence growth. Moist food tends to distend and increase the organization. Fevers often excite extraordinary growth. Lying in reclining posture is favorable to growth. In the morning, therefore, a man is somewhat taller than in the evening.

"If we compare the annual growth with the stature already acquired, we shall find that the child increases in size 2-5 from birth to the end of the first year; during the second year 1-7; during the third year 1-11; during the fourth year 1-14; during the fifth year 1-15; during the sixth year 1-18, etc.; so that the relative growth is constantly decreasing from the time of birth."

The calculated heights of Quetelet for each age conform to the observed heights within a very few millimeters. (See Appendix B. IX.)

Final conclusions, end of Chap. 1:

1. The limits in the two sexes are unequal: first, because woman is born smaller than man; second, because she sooner finishes her complete development; third, because the annual increase which she receives is smaller than that of man.

2. The stature of the inhabitant of towns at the age of 19 is greater than that of the country person by 2 to 3 centimeters (7-10 to an inch nearly).

3. It does not appear that the growth of man is entirely completed at 25 years of age.

4. Individuals who live in affluence generally exceed the average height; misery and hard labor, on the contrary, appear to be obstacles to growth.

5. The growth of the child even from several months before birth until complete development follows such a law of continuity that the increase diminishes successively with age.

6. Between the 5th and 16th years nearly the annual growth is pretty regular and it is 1-12th of the growth of the fœtus during the months before birth.

7. Subsequently to the 50th year man and woman undergo a diminution of stature which becomes more and more marked and may amount to from 6 to 7 centimeters (2 3-10 or 2 inches) nearly at about the age of 80 years.

DEVELOPMENT OF WEIGHT AND ITS RELATIONS TO THE DEVELOPMENT OF THE HEIGHT OF THE BODY (CHAP. II).

The general conclusions of Quetelet are:

1. "From the time of birth there is an inequality of the weight and height of children of the two sexes, and the inequality is in favor of males, the average weight of a boy being 3-20 kilogrammes (8 5-10 pounds Troy), that of a girl 2.91 kilogrammes (7 7-10 pounds Troy); the stature of a boy is 0.596 meters and that of a girl .483 meters.

2. The weight of a child diminishes a little toward the third day after birth and does not begin to increase sensibly until after the first week.

3. At equal ages man is generally heavier than woman; at about the age of 12 years only are the individuals of both sexes of about the same weight. Between one and eleven years the difference in weight is from one kilogramme to 1½; between 16 and 20 it is six kilogrammes nearly; and after this period eight to nine kilogrammes.

4. When man and woman have attained their full development, they weigh almost exactly twenty times as much as at birth and their stature is about 3¼ times greater than it was at the same period.

5. In old age man and woman lose about six or seven kilogrammes in weight, and seven centimeters in stature.

6. During the development of individuals of both sexes, we may consider the square of the weight, at different ages, as proportional to the fifth power of the stature.

7. After the full development of individuals of both sexes, the weight is almost as the square of the stature.

From the two preceding relations, we infer, that increase in height is greater than the transverse increase, including breadth and thickness.

8. Man attains the maximum of his weight at about 40, and begins to waste in a sensible degree at about the 60th year.

8. Woman attains the maximum of her weight at about the age of 50. During the period of reproduction, namely, from the 18th to the 40th year, her weight scarcely increases in a perceptible degree.

10. The weight of individuals who have been measured and who were fully developed and well formed varies within extremes which are nearly as 1 to 1 1-3. This is inferred from the following values furnished by observation:—

	Maximum.	Minimum.	Average.
Weight of man............	98.5 kilo.	49.1 kilo.	63.1
Weight of woman.........	93.8 kilo.	39.8 kilo.	55.2
Stature of man............	1.890 met.	1.467 met.	1.579
Stature of woman.........	1.740 met.	1.408 met.	1.579

11. At equal statures woman weighs a little less than man before reaching the height of 1.3 meters, which almost corresponds to the age of puberty; and she weighs a little more for higher statures.

12. The average weight of an individual without reference to age or sex is 45.1 gilogrammes, and taking sex into account 47 kilogrammes for man and 42.5 kilogrammes for woman.

He states also that "A transverse section, giving both breadth and thickness, is just proportional to the height of the individual." That "the average weight of an individual without reference to age or sex is 45.7 kilogrammes nearly; and, considering the sexes, 47 kilogrammes for a man (125 9-10 lbs. Troy) and 42½ kilogrammes for a woman (74 lbs. Troy). The whole population of Brussels, which amounts to 100,000 would weigh 4,572,810 kilogrammes; or nearly 4½ times as much as a cube of water 10 meters square; and the whole human race computed at 737,000,000 would not weigh as much as 33 cubes of water 100 meters square, a value which, at first sight, appears small since such a volume of water might be contained in a basin having a surface of less than 1-3 of an acre and a depth of 100 meters.

From the discussion under Chap. IV. allow me to introduce merely the following table:

AGES.	PULSATIONS.			INSPIRATIONS.		
	Awake.	Asleep.	Ratio.	Awake.	Asleep.	Ratio.
Girls, 3 to 4 yrs.	102.3	92.	1.11	30.2	24.8	1.22
Boys, 4 to 5 yrs.	93.4	77.3	1.21	29.3	21.5	1.36
Women, 26 to 27 yrs.	77.5	67.1	1.16	27.	20.8	1.30

It results from these observations that sleep causes a more sensible modification of the number of inspirations than of beats of the heart. In general it diminishes both numbers; the first is a ratio which may be considered as 7 to 6, and the second in a ratio of 4 to 3 nearly. (See Appendix B.X.)

(To be continued.)

ON GROUP CONTESTS (Continued).

JAKOB BOLIN,
New York.

In the present mode of training for contests, the main object constantly in view is victory. To that end all faculties are strained. If the event is a running high jump the question is to clear the bar as high as possible, no matter how. The jumper may double himself up in any form, land, as a bag of flour thrown over, on feet, knees and hands, head even. It does not matter so long as he gets over. That is another cause for charging the athletic training with failure in reaching the objects of physical education. One of its main purposes is to gain that coördination power which results in perfect control of the body as shown by "form" or "grace." If athletics are a necessary or desirable part of physical education, there seems to be no valid reason why the athlete should not strive for this object as well as the gymnast. To do the high jump as usual is one thing, but to clear the bar with every part of the body under full control during the whole movement, landing in good form without falling or wabbling, is a feature of quite a different kind, showing a far higher education, a true physical culture, to use this very much abused term in its real sense. Therefore each event must be judged not only according to the "ability" of the contestants but according to their form.

If these requirements were fulfilled, athletics would gain in value. But even then there remains one very important condition before it may be said to have reached the level of a rational physical training. Whatever one's opinion may be of that particular sequence of gymnastic exercises which is known as the Swedish day's order, for which I do not plead at present, one must recognize that an indiscriminate sequence is not conducive to the best results, but that the greater amount of work may be accomplished and the greater benefits gained by some definite succession in which the different exercises follow each other. For instance, all are ready without argument to concede that the work of highest intensity must not begin the day's lesson. If, consequently, some such sequence, some such "day's order" be recognized as desirable in gymnastics, there can be no reason why such a sequence should not also be followed in applied gymnastics, *i. e.*, athletics. Consequently, I make the further demand that in athletic training as in gymnastic contests, the events follow each other in a definite order, in that definite order which their physiological and psychological effects, as shown by gymnastic experience, point out. What the order is does not matter here. It may be a topic for discussion, a subject for investigation. But we should recognize the principle. Such arrangement of the different exercises or events presupposes that we have studied them so as to be able to classify them according to their effects or purposes. Here again we can not at present agree upon the basis for classification. The Germans would probably classify them mainly according to their psychic effects, while the Swedes would mainly look to physiology to furnish them with the basis for classification. However, I am well satisfied that even here we should have much common ground if we began in earnest with the main principles, fully determined to seek the truth only. Personally, I am not so well acquainted with the athletics of this or any other country as to attempt a classification of the different athletic exercises in accord with the usual classification of the gymnastic exercises by the Swedes. All vaults, jumps and sprinting belong in the "precipitant family." "Pole vault" has also characteristics of a heave movement and strongly those of "alternate side movements." Hammer-throwing, shot-putting and wrestling I would consider as side movements, the latter with strong characteristics of the "back family." "Tug-of-war" is a back movement. "Taming the steer" is a good contest belonging to the abdominal group. So is "pushing the pole," though milder and less definite perhaps. Heave movements should, as before said, be represented in contests by some form of climbing, while exercises on the horizontal bar would in certain forms be suitable additions to the programme in this family. And so on. For contests in such families where at present no suitable form of athletic exercise is found, new forms should be invented or the pure gymnastic forms should be used. Why could it not, for instance, be a suitable contest in balancing movements to have two ranks on balancing beams about six feet apart trying to push each other off the beams?

But, comes the objection of our athletic friend to whom the proper result, the score, is the vital point, how shall we be able to judge rightly of who is victor and who vanquished? Each individual may of course be judged singly and the average group used as a standard of comparison, but this would require too long a time or too many judges and be therefore a practical impossibility.

To answer this objection I am only able to say that a definite statement how the scoring should be done in each event cannot be made before these events themselves are decided upon. If, however, the opinion should gain ground that group contests embracing numerous events are far preferable to individual contests in single feats, a little good-will on all sides will soon find a way out of the difficulties. Absolute correctness can never be gained. Even now we frequently hear the decision of a referee questioned. At the colleges and large schools where large sums are annually expended for athletics and large fields are kept for athletic purposes, I hold it even to be quite easy.

Twenty-five poles could easily be erected in a straight line at one end of the field. There could easily be attached to them, at an expense inconsiderable compared with what is actually spent for similar purposes, an electric arrangement by which a current may be closed and broken at will, making a record in some one of the usual ways. These poles would then furnish apparatus for twenty-five simultaneous climbers, each of whom could make his own score by pressing a button at a certain height, for twenty-four simultaneous runners or sprinters whose records would be made automatically by breaking a thread spread from pole to pole, for twenty-four simultaneous high-jumpers or pole-vaulters, and so on. The whole outlay would by no means be prohibitive. I do not claim, however, that such arrangements would be necessary. In fact, I am firmly convinced that we have got our contests "down to too fine a point." I believe it would be much better for amateur sport if there were more freedom from the constant anxiety to score, if the rules were not so strict about what is and what is not a foul, which more properly ought to be left to the common sense and gentlemanly honor of the contestants. Too many and too strict rules foster a tendency to break the spirit of the law while keeping its letter. Americans have altogether too much legislation prohibiting this, that and the other, leaving nothing to the general moral nature of man. Thus this nature is stifled. So in civic life, so in sport. Therefore, it would also be better if there were not so exact apparatus for scoring, but instead a more thorough reliance on the general impression which is a good enough guide.

I cannot give a better idea about a proper mode of judging and scoring in group contests than by furnishing a translation of the programme and score cards at a combined gymnastic and athletic contest under the direction of Captain Nordlander, together with his explanations taken from the aforesaid article.

PROGRAM FOR A COMBINED GYMNASTIC AND ATHLETIC CONTEST, 1894.

1.

Order movements.

2.

a. Stretch stride toe standing double knee bending.
b. Standing double arm extensions in various directions.
c. Standing head bending backward. Standing alternate head turning.
d. Bend prone stride standing double arm extension upwards (sidewards).
e. Stretch close standing, trunk bending sidewards.
f. Wing standing preparation for free jumps.

3.

Tense bending double heel raising with living support, followed by stretch standing trunk bending forwards and downwards.

4.

1st sect. Once vertical climbing } ropes.
" " arm traveling } ropes.
2d " Vertical arm traveling on rung pole } hands to the same rung.
The even members on vertical ladder } hands to the same rung.
3d " Underhanging horizontal arm traveling (bom).
4th " Horizontal hanging pendular climbing upwards (arch rope).

5.

Wing hook half standing, knee stretching backwards.

6.

Running race (plain running, obstacle running 150 meters) followed by derivative movements.

7.

(a) Gymnastic pedagogic form. (b) Applied gymnastic (athletic) form.

a. 1st and 2d sects. Bend horizontal foot grasp half standing double arm extension upwards (ladderwall).
3d and 4th " Bend transverse prone arc lying double arm extension upwards (sidewards) (benches), followed by depth jump from collected start.
b. Tug-of-war (section against section).

8.

(a) Gymnastic pedagogic form. (b) Applied gymnastic (athletic) form.

a. 1st and 2d sects. Stretch foot grasp half standing trunk bending backwards (ladderwall).
3d and 4th " Bend fall foot grasp sitting double arm stretching upwards (sidewards), benches.
b. Pushing the pole (section against section).

9.

(a) Gymnastic pedagogic form. (b) Applied gymnastic (athletic) form.

a. 1st and 2d sects. Rest side foot grasp half standing, trunk bending sidewards with living support.
3d and 4th " Half stretch grasp side lying leg separation (ladderwall). Followed by stretch stride standing quick trunk twisting and trunk bending sidewards.
b. Wrestling in ranks (section against section.)

10.

Wing standing preparation for free jumps.

11.

(a) In the ranks. (b) By sections.

a. Free jumps in ranks without, with facings, etc.

b.

1st sect. Straddle vault with running start. Buck. Gradually increasing height.
Running high jump. Begins with height of 0.80 meter.

2d sect. Through vault with running start. Double bom.
Running high jump. Begins with height of 0.80 meter.

3d sect. Inside and outside pommel vault without and with facing. Bom.
Running high jump. Begins with height of 0.70 meter.

4th sect. Overgrasp hanging inside pommel vault with running start. Double bom.
Running high jump. Begins with height of 0.70 meter.

12.

Athletic form.

Exercises on track with six obstacles, carrying rifle and light equipment.

13.

Toe march and common march, etc.

14.

Yard (a) standing double arm flinging.
Standing double arm raising forward-upwards and sinking sidewards downward with double heel raising and sinking.

DESCRIPTION OF THE OBSTACLES.

Number One. Two parallel banks of earth, 1.5 meter high, inclination one in one. Distance between their upper inner edges 6.5 meters. Between the banks an excavation is made, so that the depth from upper edges of the banks to the bottom is 2.6 meters. Across the excavation and firmly fixed to the banks are four rafters with an even side of 12 c.m. The length of the banks is 8 m.

Number Two. Three poles driven into the ground in a straight line, being the support for two crossbars, of which the upper edge of the lower one is 1.25 m. from the ground, the upper one 1.73 m. Distance between the external poles, 7 m.

Number Three. A trench, 10 m. long, 1 m. deep at the farthest (?) edge and with an even inclination to the level of the ground at the nearest edge. Width 4 m.

Number Four. A hurdle of brush (10.7 m. long, 1.5 m. high) with a trench behind (0.7 m. deep, 2 m. upper width), and behind this a bank, 1 m. high.

Number Five. A trench (0.4 m. deep, 10 m. long, 6 m. wide) with four rafters loosely placed over it. Breadth of rafters 10 c.m.

Number Six. A board wall, 6 m. long, 6.1 m. high. The boards are nailed to three posts firmly attached to the ground and the external ones secured by shores.

Length of track 88 m.

SCORE CARD FOR EACH SECTION.

Section No.	Points.				
	Family of Movements.	Willingness Determination Power.	"Form."	Ability.	Total.
1	Order movements				
2	Introductory movements				
3	Tense bendings				
4	Heave movements				
5	Balance movements				
6	Running race				
7	Movements for back:				
	(a) Pedagogic form				
	(b) Athletic form				
8	Movements for front:				
	(a) Pedagogic form				
	(b) Athletic form				
9	Alternating side movements:				
	(a) Pedagogic form				
	(b) Athletic form				
10	Leg movements				
11	Precipitant movements:				
	(a) On ranks				
	(b) By section				
	1. Vaults				
	2. Jumps				
12	Obstacle track				
13	Marches				
14	Respiratory movements				

"Each company commanded by its "officer of gymnastics" — all of the eight companies have during the encampment their own "officers of gymnastics" and these are under the direct guidance of a "captain of gymnastics" — was divided into four equal sections, numbered from 1 to 4, arranged according to strength, ability and possibly previous training. Sections of the same number from the different companies were compared exclusively with each other, and their rank was judged by two "officers of gymnastics" appointed for each such pair of sections. The "captain of gymnastics" was referee in case of different opinions, and he also scrutinized the result of judging. Points from 1 to 10 were given in common by the two controlling officers — after a little practice it was quite easy to judge fairly justly — according to the formulæ in the scorecards for (1) willingness, determination, power in the execution of the movements, (2) form of movement, (3) ability (see scorecards A and B)."

As may be seen from "scorecard B" several factors have been taken into consideration in judging of the ability in the athletic forms and in the precipitant movements. In the running race the time was noticed both for "first" and "last men" (*i. e.* the time needed by the whole company) and also the number of "first," "second" and so on men who arrived simultaneously. Suppose for instance that the first section of the third company

SPECIAL SCORE CARD.

	Sect. No.					
Running race.		Time for best men =	Number of best men =	Time for last men =	Number of last men =	Average points =
Tug of war.		Number of victors =	Number of vanquished =			Points =
Pushing the pole.		Number of victors =	Number of vanquished =			Points =
Wrestling.		Number of victors =	Number of vanquished =			Points =
Precipitant movements by sections: 1. Vault.	-	Smallest height = No. men =	Increased height = No. men =	Increased height = No. men =	Greatest height = No. men =	Average points =
2. Jumps		Smallest height = No. men =	Increased height = No. men. =	Increased height = No. men =	Greatest height = No. men =	Average points =

Athletic exercises on track with obstacles	Number of men clearing						Time for taking all obstacles	Average points =
	1st obstacle	2d obstacle	3d obstacle	4th obstacle	5th obstacle	6th obstacle		
	=	=	=	=	=	=		

(1-III) needed 27 seconds to get in, while the corresponding section of the fifth company used thirty seconds, then 1-III got 3 points more than 1-V. If 3-III got in 4 "first men" in the same time that 3-V had 6, then the last named section got a plus of 2 points and so on. Of all these figures the average was taken. In a similar manner the score was decided according to the numbers of victors and vanquished in the athletic forms of Nos. 7, 8 and 9."

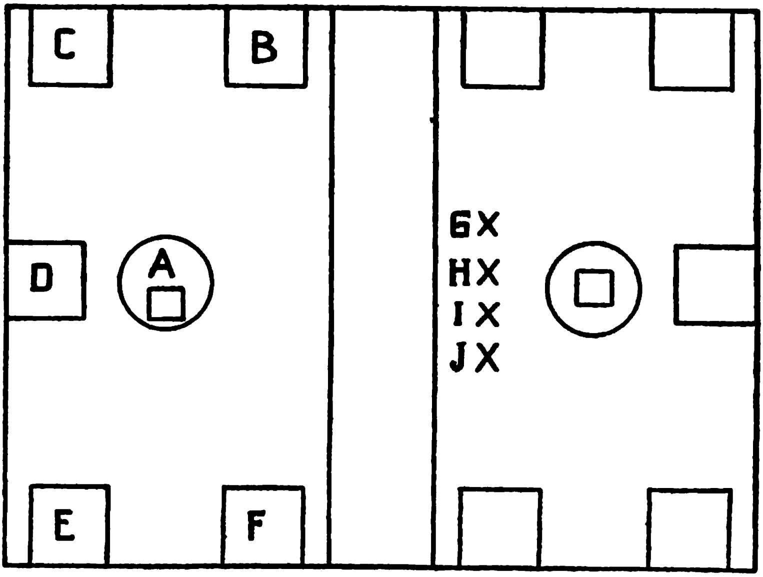
"In the precipitant movements (No. 11 of the program) notice was taken of that number of men who, while maintaining the purest form, could clear the different apparatus which were gradually raised by 10 c. m. each time. The smallest height was previously determined and differed for the different degrees of sections . . . ."

This mode of scoring is undoubtedly not perfect. It may perhaps be greatly improved. Are there not sufficient reasons at hand why we should adopt the principle endeavoring to perfect the details according to our own conditions and prevailing circumstances?

CENTRE BALL.

E. A. POOS, M. D.
Cincinnati, O.

The field is divided into two equal parts, with a neutral space of about two feet intervening, each half again being subdivided into five squares or bases (1 2 3 4 5) and a centre base (6) as per diagram. I usually place a springboard in centre square. The line-up of the players is the following: A takes centre, B first, C second, D third, E fourth and F fifth bases, while guards G, H, I and J line up in places marked by a cross in the opposing players' territory. The opposing players or team take the same position on the other side of the field. Play begins with the umpire taking his place in the neutral space and tossing up the ball. The players of both sides try to gain possession. If, for instance, guard H succeeds, he throws the ball to one of the basemen of his side, say B, who in turn will throw the ball to centre A, while the



guards of the opposing team do their best to prevent a throw to centre, by holding up their hands, catching the ball and throwing same to their own side.

1. If a baseman is successful in throwing the ball to centre it counts one point for his side. Now, the ball is returned to the umpire, who begins play again by tossing it up.

2. If the centre player, in trying to catch the ball, steps off the board it does not count one point, but he has the privilege of returning the ball to one of his basemen without interference of the opposing guards.

3. If a throw from a baseman to centre is blocked by the opposing guards he should pass the ball on to the next baseman or to the guards of his side, who pass the ball on to the next baseman, etc., keeping the ball moving as much as possible.

4. A throw from a guard to centre does not count one point, but centre can pass the ball to one of his basemen (opposing players being allowed to interfere).

5. Guards are not allowed to cross the boundary line or to step within the squares, nor are the basemen allowed to leave their bases. Leaving the bases or crossing the boundary line to interfere with a play or to gain possession of the ball is to be punished by giving the ball to the opposing side, or awarding them one point.

6. Kicking or striking the ball out of a player's hands may be allowed, but if all rough playing is to be avoided, it should not be permitted.

7. If the captain or player of a team is about to protest a decision of the umpire, he must raise his hand, and then the umpire will call time, but if he leaves his place before time is called the umpire will give one point to the opposing team.

8. If the centre is so thoroughly blocked that the ball cannot reach him, a point may be scored by passing the ball from base to base in their respective order in an uninterrupted circle.

Whenever classes played after the regular lesson no time limit was set, but whenever the team of one grade plays against another, two fifteen-minute halves, with a pause of five or ten minutes were played.

The usual number of players is 20, 10 in each team, but we have played with as many as 30-40. If a class numbers say 40, and space allows, the number of bases and guards may be doubled.

REPORTS FROM SOCIETIES.

BOSTON PHYSICAL EDUCATION SOCIETY.

THE Boston Physical Education Society has had a year of great interest and success. Most of the meetings have been well attended, sometimes taxing the capacity of the hall to the utmost.

At the beginning of the year, a special by-law was adopted by which advisory members should be elected by unanimous vote of the Executive Committee, but should have no vote, and should be exempt from the payment of dues.

Under this provision, four advisory members have been added to the Society.

Thirty-two regular members have joined, making a total membership of one hundred and seventy-nine at the end of the year eighteen hundred and ninety-eight.

Our president, Dr. Clarence J. Blake, has been untiring in his efforts to advance the interests of the Society, and of physical education,—and it was with deep regret that the Society received his decision to retire from the presidency of the same.

The finances of the Society are in a fairly satisfactory state, though the problem of how to collect all the annual membership dues still confronts the Executive Committee.

During the year the following papers have been presented and discussed:

"Psychological Aspects of Physical Education," by Mr. J. M. Pierce.

"Value of Competitive Gymnastics"—in favor, Dr. John Bapst Blake; against, Baroness Rose Posse.

"Gymnastics in Relation to the Correction of Faulty Attitudes," by Dr. Edward H. Bradford.

"The Gymnastic Treatment of Pronated Foot," by Dr. Robert W. Lovett.

"The Use of Gymnastics in Spinal Curvature," by Dr. E. G. Brackett.

"The Royal Central Gymnastic Institute of Stockholm," by Miss Esther Porter of Baltimore.

"The Education and Industrial Training of Crippled Children," by Miss Mary E. Perry, Mr. Francis J. Cotting and Dr. Augustus Thorndike.

"Swimming, a Necessity in Education," by Mr. Hartvig Nissen.

"Nerve Exhaustion," by Dr. E. W. Taylor.

At the Brookline Bath House an exhibition of swimming and water games followed the paper by Mr. Nissen.

In November a conference on Practical Gymnastics was held at which Dr. W. T. Talbot spoke of "Boys' Summer Camps," Mr. M. Anagnos spoke of "Gymnastics for the Blind," Dr. D. F. Lincoln on the "Effect of Gymnastics on the Voice," Mr. Nissen on "Swimming in Norway," and Dr. Sargent on the "Value of Conferences and the proposed plan of holding frequent ones during the year."

At the January meeting models of Dr. Hartwell's measuring chair and Professor Miller's oscillating chair were shown, and explanations of their application given by Dr. Sargent.

A request for volunteer teachers of gymnastics for mission classes having been made, Miss Hope W. Narey was appointed to take charge of such applications and secure teachers from the senior classes of the various normal schools of gymnastics. During the year seven teachers have been supplied to as many classes with good results.

By the removal to Chicago of the secretary, Mr. J. M. Pierce, the office was temporarily filled most acceptably by Miss Laura Fisher.

At the annual meeting of the Society in January, 1899, the following officers were elected for the current year: President, Dr. Robert M. Lovett; Vice Presidents, Baroness Rose Posse and Dr. John Bapst Blake; Secretary, Dr. Mary Rees Mulliner; Treasurer, Miss Laura S. Plummer; additional members of the Executive Committee, Mr. Hartvig Nissen, Mr. Francis Doh3, Miss Harriet E. Hutchinson.

MARY REES MULLINGER,
Secretary.

CHICAGO SOCIETY OF PHYSICAL EDUCATION.

THE December meeting of the Chicago Society of Physical Education was held at Hull House. Dr. Philip Doane addressed the meeting on the subject of "Neurosis: Its Forms, Causes and Treatment Under Physical Direction." Dr. Füterer followed with an interesting lecture on Anæmia and Scrofula. After discussion the Society visited the gymnasium and other interesting parts of Hull House.

At the meeting held January 21st at the Chicago Turn Gemeinde, the Society was addressed by Hugh T. Patrick, M.D., on the subject of Nervous Exhaustion. After discussion Mr. Kroh directed a gymnastic exhibition of the Chicago Normal Training Club.

The annual business meeting was held February 18th at Hull House.

The first matter of business was to discuss the advisability of becoming a branch of the National Association. After a general discussion it was decided by a unanimous vote to join the National Association, and the Executive Committee were instructed to ascertain the necessary preliminary steps.

The election of officers for the ensuing year was the next matter of business and resulted as follows: President, Miss Julia Culver; Vice Presidents, Miss Rose Gyles, Miss Alice Pitkin; Secretary, Miss Blanche E. Treat; Treasurer, Miss Mabel R. Wentworth; Executive Committee, Mr. T. O. Peterson, Miss J. Anna Norris, Mr. Karl Kroh.

Adjourned.

BLANCHE E. TREAT,
Secretary.

NEW HAVEN PHYSICAL EDUCATION SOCIETY.

THE New Haven Physical Education Society has held few meetings in the last year. At one of the first Dr. Seaver read a paper on "Heat Production," which was discussed by the Society. At the last meeting Dr. Seaver gave a very interesting and instructive account of his visit to the principal gymnasia of Europe, speaking of the work at the Royal Gymnastic Institute, Stockholm, the International Gymnastic and Athletic Feat at Copenhagen, and various institutions in Berlin and England.

A number of members have been transferred to societies nearer the locality in which they are working and five new members have been added. The treasury being in a flourishing condition, it has been decided to charge no local dues for 1899.

New officers were elected as follows at the January meeting: President, Mr. Louis Leyerzapf; 1st Vice President, Dr. J. W. Seaver; 2nd Vice President, Mr. Eugene Buckman; Secretary and Treasurer, Miss Annie Rennard Hughes; Members of the Council, Dr. E. H. Arnold, Dr. W. G. Anderson, Miss Elizabeth

Holmes. Dr. E. H. Arnold, Dr. J. W. Seaver and Miss Annie R. Hughes were appointed as delegates to the National Convention.

In order to arouse interest in physical education the Society is planning an exhibition of gymnastic work, to be given in the Yale gymnasium on Wednesday evening, March 8th. Classes from Yale, the Anderson Normal School of Gymnastics, the Turnverein, the Y. M. C. A. and possibly the Public Schools will participate. Invitations will be issued and the public in general invited to attend.

ANNIE RENNARD HUGHES,
Secretary.

PHYSICAL EDUCATION SOCIETY OF NEW YORK AND VICINITY.

THE November meeting of the Physical Education Society of New York and Vicinity was held on the evening of the 16th, at Pratt Institute, Borough of Brooklyn. The subject of the evening, "Methods of Teaching Swimming,"* was introduced by Dr. M. Augusta Requa's paper. Dr. Requa discussed particularly the teaching of swimming to children, giving much attention to the method of teaching a 'land-stroke' preparatory to going into the water. An interesting discussion followed, in which Drs. Voorhees and Brown, Mr. Siexas and Miss MacMartin took part. The value of teaching a 'land-stroke' was questioned by a few, but by the majority was thought to be valuable. No one method of teaching a stroke, however, was agreed upon, each person who had taught swimming having a favorite method of counting and a favorite time for inhalation and exhalation.

After a report on Summer Schools was read by Mr. Hillyer, the Society adjourned, that the members might have an opportunity to visit the gymnasium, swimming-pool and baths. These were of especial interest, as both the building and equipment are comparatively recent and at present are considered the finest thing of the kind in the Borough of Brooklyn.

The annual meeting of the Physical Education Society of New York and Vicinity was held on the evening of December 15th in the Gymnasium of Columbia University, Borough of Manhattan.

The business of the evening consisted of the reading of the Treasurer's and Secretary's reports, the reports of Committees, the election of officers and the President's address. The Treasurer reported a gratifying amount in the treasury of the Society. The

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*See Dr. Requa's paper in this number of the REVIEW.

Secretary reported a membership of 86, 37 new members having been admitted during the year. The Society has held eight regular meetings during the year, the average attendance being 28. The election of officers resulted as follows: President, J. Gardner Smith, M.D.; 1st Vice President, Walter Truslow, M.D.; 2nd Vice President, M. Augusta Requa, M.D.; Secretary, J. Blake Hillyer; Treasurer, Miss E. C. MacMartin; Reporting Secretary, Miss Martha Garside; Executive Committee, Watson L. Savage, M.D., Mr. Jakob Bolin, Mr. Wykell.

The meeting adjourned at an early hour that all present might visit the splendid new gymnasium, which has only recently been completed. Under Dr. Savage's supervision a complete tour of the building was made, and the fine apparatus and beautiful appointments were found to be of great interest and were much admired.

The regular monthly meeting of the Physical Education Society of New York and Vicinity was held at the Cosmopolitan Hotel, Borough of Manhattan, on the evening of the 21st of January. There were between 30 and 40 members present.

The business of the evening was chiefly in connection with the proposed meeting of the National Council in April. The Secretary, as delegate-at-large, and eight other delegates were elected. The opinion of the Society in regard to a number of important matters to be brought up at the Boston meeting was asked for and recommendations were made to those who were to represent the Society.

The subject of the evening, "What are the relations which ought to exist between the Graduate of Medicine, the Teacher of Gymnastics and the Medical Gymnast?" was ably discussed by Drs. Barrett, Wallin and Voorhees, and Mr. Jakob Bolin. The general opinion expressed was that the three should work along distinct lines, that there should be hearty support and coöperation, but that the one should not encroach upon the ground of the other if the best work was to be accomplished. The ignorance of the members of the medical profession in general as to the benefits and special effects of exercise was spoken of by professional and non-professional members, and greatly deprecated, as well as the lack of thorough training on the part of teachers of gymnastics.

As a continuation of this subject the Resolution published in the REVIEW of December, 1898, was also discussed. Miss Bancroft spoke in a spirited manner and dissented from the opinion that a medical graduate as such was in any way better fitted to be an expert in School Hygiene than the graduate of a Normal School of Gymnastics, or any person especially trained for such work.

Dr. Barrett thought that for the best interests of Physical Education the expert in School Hygiene should be a graduate of medicine, but did not consider it essential.

The Society voted that a new resolution considering these points be drawn up, and the president appointed a committee for that purpose.

MARTHA GARSIDE,
Reporting Secretary.

REPORT OF THE PHYSICAL EDUCATION SOCIETY OF NEW YORK AND VICINITY FOR 1898.

DURING 1898 this Society has held eight meetings, instead of four, as had formerly been the custom; one in each of the months of January, February, March, April, May, October, November and December, instead of every three months or quarterly. The larger number of meetings has entailed more work for the officers and the individual members, but the results have demonstrated the move to have been a wise one, the attendance being larger, the discussions broader and more generally partaken in, the general interest, the treasurer's receipts, and the number of new members being largely increased.

For the first time in the history of this Society a programme for the year was outlined, and with one exception, was strictly adhered to; the programme was printed and mailed to each member, thus acting as a reminder from month to month for each participant and each individual member of the date, place and subject of each meeting; in addition postal announcements were sent each month to each member. The programme for the year is appended:

Executive Committee: President, J. Gardner Smith, M.D., 307 Lenox avenue, New York; 1st Vice President, Walter Truslow, M.D.; 2d Vice President, Mathilda K. Wallin, M.D.; Secretary, J. Blake Hillyer, A.M., 106 Broadway, West New Brighton, N. Y.; Treasurer, Miss E. C. MacMartin, 115 Union avenue, Mount Vernon, N. Y.; Watson L. Savage, M.D., Jakob Bolin, M. Augusta Requa, M.D.; Reporting Secretary, Miss Martha Garside; Committee on Theory and Statistics, Walter Truslow, M.D., Chairman; Committee on Publication and Bibliography,

H. Metzner, Chairman; Technical Committee, J. Gardner Smith, M.D.

PROGRAMME FOR 1898.

January 15.—West Side Branch, Y. M. C. A., 318 West 57th street. Physical Education in New York Public Schools. Paper: M. Augusta Requa, M.D. Discussion: Miss Jessie H. Bancroft.

February 16.—Packer Institute, Brooklyn. Recommendations in Regard to Public School Work. Committee: M. Augusta Requa, M.D., Miss Jessie H. Bancroft, Andrew L. Barrett, M.D.

March 16.—Dr. Savage's Physical Development Institute, 308 West 59th street. Report of Committee on Theory and Statistics. Committee: Walter Truslow, M.D., Chairman, Herman Seibert, Miss Beiderhase.

April 15.—New York University, Washington Square. "The Standing Posture." Paper: Jakob Bolin. Discussion: Henry Ling Taylor, M.D., Matilda K. Wallin, M.D.

May 17.—Harlem Y. M. C. A., 125th street. "The Training of Leaders." President J. Gardner Smith, M.D., W. L. Savage, M.D., H. Metzner, Miss Sackett, Miss D. M. Elliott and others.

October 15.—Berkeley Ladies' Gymnasium, Carnegie Hall. Report of Work of Summer Schools. J. Blake Hillyer, A.M.

November 16.—Pratt Institute, Brooklyn. Report of Technical Committee. J. Gardner Smith, M.D., Chairman.

December 15.—Columbia University. Annual Meeting and Election of Officers. President's Annual Address. Report of Committee on Publication and Bibliography. H. Metzner, Chairman, Miss E. C. MacMartin, Miss Mabel H. Taylor.

Average attendance at meetings	29
Average attendance at meetings of Executive Committee of 8 members	6
Number of papers read before Society	12
Number of papers transmitted to AMERICAN PHYSICAL EDUCATION REVIEW	14
Number of papers printed in AMERICAN PHYSICAL EDUCATION REVIEW	9
Total number of official communications by Secretary	1647

EXPENSES FOR YEAR.

Printing, postage, stationery, janitor's fees, etc	$53.85
Dues to National Organization	65.00
Total	$118.85

RECEIPTS.

Balance in hand January 1st, 1898	$ 51.69
Dues paid in January 1st, 1898	166.00
Total	$217.69
Balance, January 1st, 1899	$98.84

Dues to local Society were reduced in January from two dollars to one dollar and a membership fee of one dollar levied upon new members, two changes which have proved advantageous.

Number of members January 1st, 1898	66
Number of members resigned	4
	62
Number of new members elected	40
	102
Dropped for non-payment of dues	14
Total on roster January 1st, 1899	88

The fourteen members dropped were not in good standing on January 1st, 1898, and should have been dropped before that date, leaving 52 members at beginning of year in good standing.

A Committee on Extension (or new members) consisting of Dr. A. L. Barrett and Miss M. D. Fisher contributed to the good showing in the number of new members. To this Committee were referred names of those who should be members of the Society, not personally known by the members of the Society, and an invitation to join our ranks when presented officially by the Committee often elicited a ready affirmative.

A Reporting Secretary in the person of Miss Martha Garside, of Pratt Institute, has done faithful work during the year in reporting the proceedings of the Society to the National Organization for publication in the Review. It is contemplated to increase the duties of the Reporting Secretary, so that proceedings of the Society may be furnished to *all* magazines which may desire them, to educational journals and to daily papers which publish columns of educational matter.

Of the Standing Committees credit is due to the *First*, of which Dr. Truslow was chairman, for a report on original statistics. The Standing Committees in the past have sometimes failed to do their full duty and therein lies one defect which may be remedied. The custom of this Society is to have one member of the Executive Committee on each Standing Committee, and in this way the Executive Committee knows just what is being done. If the Executive Committee is a good one and each Executive Committee member on each Standing Committee keeps his eyes open, something definite ought to result each year from each committee.

A certain small *per cent* of each year's revenues is set aside for the purchase of books and additions to our library, which is already of considerable size, some 30 odd books, and is shelved with the Library of the New York School of Pedagogy in Washington square. The former library is under the care of the second Standing Committee, which committee is also charged with the duty of making additions to it as they see fit.

The Society has decided for the coming year to meet as formerly, at *different* places each month, instead of at one permanent headquarters, the advantages of such action being two-fold: to enable members to see changes and improvements in gymnasia and their equipments; and to enable members who could not attend all, or possibly any, meetings, unless held in their immediate vicinity, to be present at least occasionally. A prosperous and interesting year's work is finished and the outlook for 1899 is most encouraging; that so much can be done by members already more than busy in their profession, that assignments to speak, discuss and make researches are so readily and cordially accepted by individual members are good omens for the future.

Respectfully submitted for the Physical Education Society of New York and Vicinity,

J. Blake Hillyer,
Secretary.

PHILADELPHIA PHYSICAL EDUCATION SOCIETY.

The first of the regular monthly meetings of the Society for the season '98-99 was held at Drexel Institute on Saturday, November 19.

The President, Dr. C. E. Ehinger, after welcoming the members, addressed the meeting on "Physical Training: its Meaning, its Relation to Education in general." He said that the great cardinal principle for which we should contend, is that education means the training of the body as well as the mind; the problems relating to physical education and to mental training are practically identical and wholly inseparable. If the average teacher could be made to realize the significance of the well-known truth that no thought passes through the mind without some corresponding bodily movement upon which it depends for its manifestation in consciousness, we will have made a tremendous stride. Thinking, feeling and willing are as much general bodily processes as they are brain processes. To train the mind we must educate the body, not simply because thought finds its only expression through the medium of the body, but for the higher reason that bodily activities bear a casual relation to mental processes. Mind is the outgrowth and resultant of physical activities.

After a discussion on the "Place of Play in the Gymnastic Lesson," the meeting adjourned.

EIGHTH MEETING.

The eighth meeting of the Society was held December 16. Dr. J. A. Babbitt of Haverford College read a paper on "Competitive Drill at Haverford College." He dwelt upon the uses of competitive drill and the advantages and disadvantages of them in connection with the Swedish, German and American systems; how they may be used to the greatest advantage in handling large bodies of students necessarily having different temperaments and requiring varied treatment.

Major T. D. Landon of Bordentown Military Institute presented a paper on "Military Drill."

A paper on the "Relation of Water to Exercise and Physical Development" was read by Mrs. C. E. Ehinger, and it was voted that the paper be sent to the National Association for publication.

NINTH MEETING.

The ninth regular meeting was held January 21. Dr. C. E. Ehinger presented a report on "Recent Literature Bearing on Physical Exercise." It was essentially a review of "Air, Food and Exercise," by Rabagliati. The author claims that there are three predisposing causes of disease, as there are three predisposing causes of health: air, food and exercise. Properly regulated they give as their resultant, health; improperly managed, disease.

Dr. James A. Babbitt gave an interesting talk on the Society of College Gymnasium Directors and of their recent meeting in New York and their plans of work. He also gave a description of the new gymnasium at Columbia College and told of several interesting pieces of apparatus to which his attention had been called when visiting.

One new member was elected.

ESTHER KUHN,
Secretary.

February 8, 1899.

SOCIETY NOTES.

THE SOCIETY OF COLLEGE GYMNASIUM DIRECTORS.*

December 30th, 1898. Meeting called to order at 10.25 a. m. by the President, Dr. J. W. Seaver of Yale University. President Dr. Sargent of Harvard, Dr. Anderson of Yale, Dr. Phillips Amherst, Dr. McKenzie of McGill, Dr. Banning of Colgate, Mr. Dodge of Rutgers, Dr. Lambeth of University of Virginia, Dr. Crenshaw of Johns Hopkins, Professor Goldie of Princeton, Mr. Marvell of Wesleyan, Mr. Cann of New York University and Dr. Savage of Columbia.

Letter and telegram received from Lieutenant Koehler, U. S. M. A.; paper and letter from Dr. Linhart of Ohio State University.

The council presented names for membership as follows: Mr. Frank Homer Curtis of Purdue University, Dr. James A. Babbitt of Haverford College, and Dr. G. W. Banning of Colgate University, Hamilton, N. Y.

Dr. Sargent then read his paper, "The Hygienic Value of Strength Tests," discussed by Dr. Phillips, Dr. McKenzie, Dr. Anderson and Professor Goldie. Dr. Anderson made his report on terminology, offering it as a working basis for one year in light gymnastics, and A. F. Jenkins' book for heavy gymnastics. Drs. Seaver, Sargent, Crenshaw, Banning, Phillips, and Professor Goldie took part in the discussion. Dr. Banning moved that the report of the committee be accepted as a report of progress, and the committee decided to bring the matter before the convention when it shall meet in the spring. Strength test trophy was left to the council with power to act. The following papers were read: Dr. Phillips, "Kind of Exercises for College Students"; Dr. Crenshaw, "What we Mean by Physical Training"; Dr. Seaver, "The College Athletic Trainer." Discussions were postponed on account of time until next meeting. Dr. Anderson's paper, "Some Tangible Results of Gymnastics," was discussed by

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*Not yet affiliated with the A. A. A. P. E.—ED.

Drs. Sargent, McKenzie, Savage, and Professor Goldie. Dr. Lambeth then read his paper, "The Credit that Should be Given for Gymnastic Training in a College Curriculum." Dr. Lambeth moved that the President appoint a committee of five to draft a schedule of work in physical training of such a value as should be credited to a master or bachelor of arts, sciences, or letters, the said committee to report at the next annual meeting. The following officers were elected for the ensuing year: Dr. D. A. Sargent, President; Dr. W. J. Anderson, Vice President; Dr. W. L. Savage, Secretary and Treasurer; Council, Dr. J. W. Seaver and Dr. J. A. Babbitt.

W. L. SAVAGE, M.D.

REPORTS OF THE COUNCIL.

Report of the Council meeting for December 2nd, 1898.

Present: Drs. Hartwell, Hitchcock, Fitz, Sargent, Channing and Mr. Eberhard.

Secretary reported dues received during November in response to notices sent to members, delinquent for 1898, $42.50. Subscriptions to the REVIEW, $9.00. Expenses, postage, expressage, clerical work, etc., $20.97.

The following applications for membership were favorably acted upon: Ellery G. Peckham, Stamford, Conn.; Blanche E. Treat, Lake Forest, Ill.; James W. Thornley, New York, N. Y.

Treasurer reported cash on hand, December 1st, $257.30.

It was voted that the Secretary be authorized to bind proceedings and the REVIEW and exchanges for the use of Editor of the REVIEW.

It was voted that the Secretary be authorized to purchase stationery for bills, application blanks and correspondence, not to exceed $20.00.

The programme for the Convention was discussed. The Brookline and Cambridge days were arranged for and it was voted that the President and Treasurer be a committee to engage the hall of the Boston Y. M. C. A. for Tuesday evening, April 4th, on the best terms possible.

Meeting adjourned.

G. W. FITZ,
Recording Secretary, *pro tem.*

Council meeting, January 6th, 1899:

Meeting called to order at 7.50 p. m., President Hartwell in the chair. Present: Drs. Hartwell, Hitchcock, Sargent, Fitz and Mr. Eberhard.

Reading of minutes omitted.

The following were offered for membership and accepted by Council: Grace H. Cowing, Boston, Mass.; Frank J. Perry, New Britain, Conn.

The Corresponding Secretary reported receipts for the month of December: For dues, \$21.00; subscriptions, \$3.50; sale of reports, etc., \$9.32; total, \$33.82; expenditures, postage for correspondence, 88c.; postage for Reviews, reports, etc., \$4.66; clerical work, \$14.10; sundries, 5c.; total, \$19.69.

The Corresponding Secretary reported for the year 1898: Receipts, \$836.06; expenditures, \$192.77; balance, receipts over expenditures, \$645.29. Number of members who paid for 1898 (and some for 1899), 525; members not paid for 1898 (including some not paid for 1897), 146; members dropped, not having paid since 1894 or 1895, 112. Subscriptions to Review, 12; exchanges with Review, 13.

The Corresponding Secretary, as Chairman of the Committee on Publication and Bibliography, reported the printing of five numbers of the Review in the year 1898, including the December number for 1897, and the March, June, September and December numbers for 1898.

The Treasurer reported the financial report for 1898 as follows: Balance on hand, January 1st, 1898, \$74.75; receipts for 1898, \$894.31; expenditures for 1898, \$788.76; surplus of receipts over expenditures for the year 1898, \$105.55; balance on hand, January 1st, 1899, \$180.30.

It was voted that the Treasurer's report be submitted to the standing Auditing Committee.

The special Committee on Accommodations for the April Convention, Dr. Hartwell, Chairman, reported that the Y. M. C. A. Hall could not be secured for the evening of April 4th, but could for the 5th, and recommended that the public meeting of the Convention be held on Wednesday, April 5th, and the committee be authorized to secure the hall for that evening.

After discussion, it was voted that the Technical Committee be empowered to add to its members as it may deem best, and is requested to take into consideration the scheme of nomenclature of the Committee of the Association of College Directors.

After discussion of programme of the Convention and matters relative to entertainment of visiting members, the Council adjourned.

G. W. Fitz,
Recording Secretary, *pro tem.*

Council Meeting, Friday, February 3, 1899.

Meeting called at 7.55 p. m., Dr. Hartwell in the chair.

Present: Drs. Hartwell, Hitchcock, Sargent, Fitz, Mr. Eberhard.

Reading of the minutes of the previous meeting omitted.

The Corresponding Secretary reported the following applicants and they were voted into membership of the A. A. A. P. E.:

Maurice Fels, Philadelphia, Pa.
Carl Dautrich, Springfield, Mass.
Charles Jenney, Stamford, Conn.
Isabel Anderson, Neponset, Mass.
Evelyn B. Sherrard, Wellesley, Mass.

The vote of the New York Physical Education Society relative to the resolution concerning the action of gymnastic instructors as experts in school hygiene to be considered at the Convention, was discussed and it was voted to add to the resolution the following paragraphs:

Resolved: That a medical degree in itself cannot be considered as a sufficient qualification for a position as director of physical training or teacher of gymnastics, and

Resolved: That a professional course of training is a necessary qualification for the teacher of gymnastics or director of physical training.

The Corresponding Secretary reported receipts for the month of January, $177.97, expenditures $21.05.

Voted, that 1500 copies of the March number of the REVIEW be printed.

Voted, to print the programme of the Convention as a Supplement to the March number of the REVIEW.

The Treasurer reported receipts during January, $37.15; paid, $141.25; balance on hand, February 1, $183.73.

The programme of the Convention was considered and Baroness Posse and Mr. Nissen from the Boston Physical Education Society were introduced.

Dr. Sargent, for the Committee of Arrangements, reported that Radcliffe offers the use of the gymnasium for the meeting on Cambridge Day.

The programme of the Convention was discussed and details settled.

Voted, to hold a special meeting of the Council February 17th for the report of committees.

Meeting adjourned.

Special Council Meeting, February 17th, 1899.

Meeting informal. Present: Drs. Hartwell and Sargent, and Mr. Nissen of the Boston Physical Education Society.

Details of programme discussed. G. W. FITZ,
Recording Secretary, *pro tem.*

REPORT OF TREASURER, A. A. A. P. E., FOR YEAR ENDING DECEMBER 31, 1898.

Balance on hand January 1, 1898, as per report of that date	$74.75	
Received during year, including receipts for month of December	894.31	
Expenditures during year, including bills for month of December		788.76
Surplus of receipts over expenditures during the year	105.55	
Leaves with balance on hand January 1, 1890, of	74.75	
Funds on hand January 1, 1899	$180.30	

Chr. Eberhard,
Treasurer, A. A. A. P. E.

FINANCIAL REPORT OF THE CORRESPONDING SECRETARY, A. A. A. P. E., FOR THE YEAR 1898.

RECEIPTS.

For	Dues of members	$707.50	
	Subscriptions to Review	44.00	
	Sale of reports, Reviews, bibliography cards, etc	81.56	
	Society fee	5.00	
	Total	$838.06	
			$838.06

EXPENDITURES.

For	Postage for correspondence	$39.35	
	Postage for Reviews, Reports, etc	25.72	
	Expressage	6.80	
	Revenue stamps on checks	.04	
	Cash book	.45	
	Envelopes	2.81	
	Clerical work	115.95	
	Sundries	1.65	
	Total	$192.77	
			$192.77

G. W. Fitz,
Corresponding Secretary, A. A. A. P. E.

OFFICIAL ANNOUNCEMENTS.

The Corresponding Secretary will gratefully receive correct addresses for the following members of the A. A. A. P. E.: W. E. Allen, Miss Ella Bradley, Charlemagne Koehler, Miss Mary Asinith Reed and Miss Blanche Schofield.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF PHYSICAL EDUCATION.

PROGRAMME OF THE FIRST NATIONAL CONVENTION.

TUESDAY, APRIL 4, 1899.

Morning Session. At the Girls' Latin School, Copley Square, Boston, 9.30 o'clock.

Opening of the convention by the President of the Council.

Choice of Committee on Credentials.

Report of Committee on Credentials.

Choice of Permanent Chairman and Secretary.

Choice of Executive Committee.

Choice of Committee on Resolutions.

Session of the convention as a Committee of the whole, (1) to hear reports from Standing Committee of the Council, and from the several societies, upon :

(*a*) The condition, needs and prospects of the constituent societies.

(*b*) The present condition of physical training in schools, *e. g.*, public, secondary, normal, colleges, Y. M. C. A., clubs and societies,

and (2) to consider :

(*a*) The needs of the Association.

(*b*) The most hopeful means of overcoming the obstacles to its work.

(*c*) Amendments and changes to Constitution, etc.

(*d*) The place at which the next convention shall be held.

(*e*) The district or section which shall choose the next National Council.

(*f*) The best means of continuing and improving the AMERICAN PHYSICAL EDUCATION REVIEW.

Afternoon Session. In the afternoon from 2.30 until 5.30 members of the convention and of the Association will be invited to visit the principal Normal Schools of Gymnastics and Gymnasia in the neighborhood. Announcements will be made at the end of the morning session.

Evening Session. The evening session will be held at the High School in Brookline. A paper on Swimming Baths, a series of lantern views of European and American Public Baths, and an Exhibition of Swimming at the Brookline Bath House, which is near by, may be expected.

WEDNESDAY, APRIL 5.

Morning Session. At the Girls' Latin School, 9.30 A. M.

(1) Discussion of the following resolution:

Whereas, Though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable form of educational discipline, therefore be it

Resolved, That it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training, *unless they have taken a medical degree,* to profess or be expected to serve either as experts in school hygiene or as practitioners in Mechanotherapy.

Resolved, That a medical degree in itself cannot be considered as a sufficient qualification for a position as director of physical training or teacher of gymnastics, and

Resolved, That a professional course of training is a necessary qualification for the teacher of gymnastics or director of physical training.

Discussion to be opened by Dr. H. L. Taylor, of New York, Dr. C. J. Enebuske, of Boston, Miss Jessie H. Bancroft, of Brooklyn, and Mr. Hartvig Nissen, of Boston.

(2) Discussion as to the advisability of the A. A. A. P. E. undertaking to determine and certify the qualification of teachers of physical training.

Discussion to be opened by Dr. G. W. Fitz, of Cambridge, Dr. E. H. Arnold, ofNew Haven, and Baroness Rose Posse, of Boston.

Afternoon Session. Discussion of the following resolution:

Whereas, We believe that serious obstacles to the advancement of physical education in the United States are found in the undue and premature promotion of athletic sports, and the well-nigh general failure of school and college authorities to recognize and promote approved and rational forms of physical training, therefore be it

Resolved, That, while school games and plays are highly desirable, the introduction and support of gymnastic instruction in city and country schools is of too great importance to be subordinated to the interests of games and plays.

Discussion to be opened by Dr. D. A. Sargent, of Cambridge, Miss Rebecca Stoneroad, of Washington, and Mr. G. E. Johnson, of Andover.

Evening Session. A public meeting will be held at the Hall of the Boston Y. M. C. A., Boylston Street, at eight o'clock.

Addresses will be given by the President of the convention, by Mayor Quincy, and by Dr. Hartwell, President of the Association.

It is expected that the Gymnasium of the Y. M. C. A. will be open to the inspection of the public after the exercises of the evening.

THURSDAY, APRIL 6.

Morning Session. The business meeting and closing session of the convention will be held at the Girls' Latin School at 9.30 A. M.

Afternoon Session. A public meeting will be held at the Fogg Art Museum of Harvard University, at Cambridge, at 3 or 3.30, at which it is expected that President Eliot, Dr. Sargent, Dr. Hitchcock and Dr. Seaver will speak on the Question:

What measures are best calculated to secure a dignified and influential place for Physical Training in the Educational Curriculum?

After the meeting an opportunity will be given to visit the principal buildings of the University, and the New Gymnasium of Radcliffe College will be open for inspection and a social gathering.

Evening Session. At eight o'clock there will be a Gymnastic Exhibition in the Hemenway Gymnasium, Cambridge, by students from Harvard University, the Boston Turn Verein, the Boston Swedish Gymnastic Club, the Boston Y. M. C. A. and Y. M. C. U., pupils from the Boston Public Schools and Dr. Sargent's Normal School of Physical Training.

The exhibition will be free to the members of the convention, but others will be charged an admission fee for the benefit of the *publication fund* of the A. A. A. P. E.

EDITORIAL NOTE AND COMMENT.

The field in which the friends and advocates of physical education should exercise a positive influence grows wider and wider. It is an encouraging and significant fact, for instance, that the Mayor of Boston stands before the public as an earnest advocate of public gymnasia, as well as of public baths and playgrounds. Mayor Quincy's paper read before the Americal Social Science Association, at Saratoga, August 31, 1898, has already been pub lished in the REVIEW (December, 1898). In his inaugural address in January last he urged a generous policy in this respect upon the City Council of Boston. In the schedule of the "Free Municipal Lectures of the City of Boston," Mayor Quincy is announced to speak on four separate occasions on "Baths and Gymnasia."

The City of Boston has maintained public out-of-door gymnasia at the Charlesbank and at Wood Island Park for several years under the charge of the Park Department. Rather more than a year ago the city was presented with a gymnasium on Paris street in East Boston by Mrs. Leonard Ahl, who had maintained it for some years as a charitable enterprise. This gymnasium has since been maintained and managed, for the benefit of the public, by the city, under the charge of the newly established Baths Department. The building, which contains a spacious gymnasium, a hand-ball court, and a series of shower baths, was originally built for a skating rink. Class instruction has been provided, and plans for altering and improving the building are under consideration. Several buildings combining gymnasium and bath facilities are projected for other parts of the city, and it is noteworthy that numerous requests for public baths and gymnasia, under the form of resolutions in the Common Council, have recently been preferred.

The Massachusetts Legislature of 1898 authorized the City of Boston to issue loans to the extent of several hundred thousand dollars towards providing a complete system of public playgrounds. It is scarcely more than a year since the Boston Baths Department was established. Its policy during the summer of 1898 marked a distinct advance in that it opened several new baths and instituted a corps of swimming instructors, under the direction of Mr. H. Nissen, Acting Director of Physical Training in the Boston Public Schools. The appreciation by the public of the new and enlarged facilities offered was marked and encouraging, and no less than three thousand school children, who were unable to swim at the beginning of the season, passed the swimming examination before the baths were closed in September. The total number of baths taken in the course of the summer amounted to over 1,900,000, or rather more than three times the number of baths taken during the season of 1897.

It is only indirectly that these measures for the advancement of physical education in Boston have been promoted by members of the Boston Physical Education Society. The Physical Education Society and other associations in the promotion of physical education, vacation schools, the multiplication of playgrounds and the like, have co-operated hitherto less actively and cordially than the importance of their common interests would seem to demand.

It is to be hoped that the Boston Physical Education Society and the Massachusetts Emergency and Hygiene Association will take measures to awaken the public to a more intelligent appreciation of the enlightened policy upon which the city government of Boston has entered. Unless those who are familiar with the lessons of experience, as to the most approved methods of managing baths and gymnasia, shall strive to secure a wise and adequate policy as regards the management of the already rapidly multiplying institutions of this sort, there is danger that crude aims and groping methods may get the upper hand at the start. It would be a pity if, for the lack of sympathy and intelligent co-operation on the part of physical education societies and like bodies, public playgrounds and gymnasia should be as mismanaged as school and college athletics have been. The need of reform in athletics has at last been recognized and some reforms have been instituted. Why should not those who profess to stand for wise and intelligent management of gymnastics and athletics take immediate and active measures towards preventing the need of reform ever arising?

There are opportunities for the New York Physical Education Society, also, to make its influence felt in the erection and management of public gymnasia. It may not generally be known that an appropriation was made almost at the very end of Mayor Strong's administration of $174,000 for a playground and gymnasium in one of the most congested sections of New York City, and that a space equal to two city blocks has been secured for the purpose. The writer has inspected the architect's plans for the playground and gymnasium in question, and it is his firm belief that the promoters of the enterprise, including the architects, are unaware of the existence of the New York Physical Education Society.

There is a large opportunity for members of the A. A. A. P. E. to exercise a stimulating and helpful influence on the growing movement for the provision of public gymnasia, playgrounds and baths in our great cities. Will they embrace their opportunity?

The discussion on military drill for public school children by Dr. MacCracken, seems a reopening of the question which has been so often decided in a negative way during the past three years. To those who do not analyze the conditions in the school, but consider that military drill means such exercises as give rise to a correct standing posture and a manly figure, the argument brought forth by Dr. MacCracken appears strong. The discussion of this question, published some time since in the REVIEW, and in Mind and Body, brought out clearly that that which is of value in military drill, as given in high schools, is not military drill, but really a specialized form of gymnastic exercise, the so-called "setting-up exercises." To assert a claim that military drill is of more value than gymnastic exercise because the value of military drill depends on gymnastic exercise indicates a curious state of ignorance regarding the subject discussed. The evidence of military countries is so thoroughly against the value of military training in schools, that it seems as if we might cease to discuss the matter from that standpoint. That gymnastics which give a strong body and a good carriage are of value in the schools goes without saying and the emphasis should be upon the introduction of such exercises into all schools, rather than so-called military drill.

NEWS NOTES.*

The Baltimore Physical Education Society was organized in March, 1898, but is not yet a part of the A. A. A. P. E.

It meets the first Saturday of each month from October to May, inclusive.

The annual dues are $1.00. There is also an initiation fee of $1.00 for local members, and of $0.50 for out-of-town members. These pay no dues the first year.

The Society has held eight meetings, at which have been presented:—

Reports.—1. On "Gymnastics in the Public Schools of Baltimore," by Mr. C. F. E. Schulz.
2. On "Books relating to Physical Education to be found in the Baltimore Libraries," by Dr. E. M. Schaeffer.

Papers.—1. On "Measurements taken at the Woman's College of Baltimore in 1893-94," by Miss Palmquist.
2. On "Some Anthropometric Statistics of the McDonogh School, Md.," by Mr. Schuyler B. Moon.
3. On the "Progress of Gymnastics in the Baltimore Public Schools," by Miss E. Lowrey Nunn.

Discussions have taken place on these reports and papers, and also on the current literature of Physical Education, Anthropometry, Games, etc.

ELIZABETH A. WRIGHT,
Secretary.

At a recent meeting of the Baltimore Physical Education Society, Miss Palmquist, of the Woman's College, read a paper on "Measurements" and gave a statistical report showing the results of six months' gymnasium training during several years' records at the college. She expressed decided incredulity as to the value of the extended list suggested by the A. A. A. P. E.

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* For assistance in collecting items of interest for this department, the REVIEW is indebted to Miss Elizabeth A. Wright, Dr. E. M. Schaeffer, Miss Blanche E. Treat, Miss Jessie H. Bancroft and others.—ED.

In the discussion, considerable variety of opinion was elicited, many thinking that valuable time was wasted. Mr. S. B. Moon, of the McDonogh school, defended the cause of Anthropometry, and exhibited four charts of interest, plotted on the tabular lists which he has compiled. No. 1 showed the tracing of the most symmetrical boy in the school, who was at the same time leading his class, and a superior fellow, morally. No. 2 was from the most awkward youth. No. 3 of a boy whose relatives had uniformly died of phthisis. No. 4 was of a hydrocephalous youth. The boys plot their own charts and take real interest in so doing. Their value as a clear and graphic record was strongly insisted upon.

In accordance with a bill presented to the Chicago city council by Alderman Griffith, considerable land has been appropriated for playgrounds in certain parts of the city.

As fast as possible the public schools of Chicago are being furnished with gymnastic apparatus. Each high school is to have a well equipped gymnasium and a special instructor.

Within the last month, Notre Dame, of Chicago, has opened a fine new gymnasium.

An Inter-Collegiate Gymnastic Contest, open to all the Colleges and Universities of the United States and Canada, will be held under the auspices of the New York University, in their Gymnasium, at University Heights, New York City, Friday evening, March 24th, 1889, at eight o'clock.

Cups will be awarded to the first, second and third contestants in each of the following events: Horizontal Bar, Rings, Side Horse, Tumbling, Parallel Bars and Club Swinging.

Cups will also be awarded to the first, second and third contestants in the All-Round Championship. The winner to be known as The Champion All-Round College Gymnast.

Conditions governing the meet:

First—Each competitor shall perform three exercises of his own selection or combination.

Second—Except in case of accident to the apparatus, no second attempt shall be allowed.

Third—The Judges shall mark, each for himself, in a ratio to five points for a perfect performance, taking into consideration:

1. The difficulty of the exercise. 2. The beauty of the combination and its execution. 3. The general form of the contestant.

Fourth—The winner of the competition shall be the one having obtained the highest aggregate number of points, next highest second, and so on.

Fifth—Contestants in the Club Swinging event shall be allowed to use clubs of their own selection, and shall be allowed five minutes for a performance.

No entry fees.

Entries will close March 15th.

The meeting will be governed by the Inter-Collegiate rules governing qualification and eligibility.

A Dance will be held after the meet in honor of the visiting contestants.

This will be the first Inter-Collegiate Gymnastic Contest ever held in this country. The institutions that have entered are Harvard, Yale, Princeton, University of Pennsylvania, Columbia, Cornell, Amherst, Lehigh, Wesleyan, Trinity, Union, Lafayette, Swarthmore, Haverford, New York University, Union Theological and Rutgers.

Military drill in schools was given a prominent place on the programme of the National Militia Convention at Tampa, Florida, in February. Dr. MacCracken, Chancellor of the New York University, delivered a carefully prepared address on the subject, summarizing the work that has been done in this country and quoting the opinions of principals who have tried it. Testimony from the high schools was in favor of military instruction and a considerable proportion of that from the grammar schools, though some principals opposed it. Dr. MacCracken said:—

"I offer as an induction from the data that has been given us two propositions:

First—Instruction in military tactics in public and private high schools so far as tried, has been eminently useful to the boys and to their teachers and the nation; and therefore this convention should organize a propaganda to secure the extension of instruction in the high schools until, instead of less than 5 per cent of the public high schools giving such instruction, there should not be 5 per cent neglecting this instruction. Also in the private high schools; so that instead of less than 15 per cent in any one of the five divisions of our country that give such instruction, there should be less than 15 per cent not giving it.

My second proposition is that in communities where no high schools exist, and where boys are continued in the grammar or common schools until they are fifteen or sixteen years of age, this convention should encourage such schools to give military drill, such as is elsewhere given in high schools. Further, that grammar schools should be encouraged to introduce the various "setting-up exercises," as a valuable and easily arranged gymnastic. Beyond this, as a rule, the grammar school should not attempt any military tactics.

I have tried both military drill and gymnasium drill for boys of my own. I regret to say that gymnasium drill and track athletics do not seem to do much toward teaching boys how to stand up easily or carry their bodies gracefully. It is more liable to give overtraining, and cause the youth to break down when the training has ended. Between athletic drill and military drill, I believe the latter excels in promoting symmetry and rounding out the physical being."

The Board of Education in Chicago is about to undertake a scientific investigation of the physical condition of the school children of that city. The results established will be taken as a standard for the treatment of the pupils in their capacity for physical exercise and mental endurance. The theory of the test is to determine the "fatigue period" of a child, or that period of its life at which its energies are at the lowest ebb when it is least fit for the customary work of the school. The test will include a thorough physical examination of all the children of one of the largest elementary schools in that city, with the accurate weights and measurements of each candidate, in order to determine its physical condition and note defects.

A test will then be made of the strength and enduring powers of the muscles of the child. To do this the ergograph will be used.

Roof gardens have been put upon six new school buildings in New York City. They offer a solution of the problem of providing out-door school playgrounds in the crowded districts. For out-of-school use they can be reached by stairways and elevator shafts without encroaching upon the rest of the building. They are surrounded by a high brick wall, thus doing away with all danger of accidents, and a complete enclosure of wire netting in addition protects the street below from balls or other missiles. The gardens add three or four thousand dollars to the cost of a building.

Asphalt as a gymnasium flooring has been used successfully in a recently constructed school in New York City. It can only be used in fireproof buildings, but is no heavier than double flooring and costs very little more. Apparatus can be adjusted upon it as well as upon wood and it is practically indestructible. If over a heated room its temperature is about the same as wood. Among the advantages claimed for it are noiselessness as regards the rooms beneath, no splinters, no slipping, and cleanliness. Dust does not lodge in it as in the cracks of a wooden floor and it can be flushed with a hose.

Gymnastic treatment in the outdoor orthopedic clinics of New York City has taken a considerable stride during the last year, four or five institutions having taken up this mode of treatment in that time. It is conducted mostly by physicians, and in a few cases by other trained specialists. The institutions now giving regular corrective gymnastic work in their outdoor clinics are the New York Hospital for Ruptured and Crippled, Forty-second street and Lexington avenue; Bellevue Hospital; the New York Orthopedic Hospital, Fifty-ninth street and Lexington avenue; the Vanderbilt Clinic, Sixtieth street and Tenth avenue; the Educational Alliance, East Broadway; Polhemus Memorial Clinic of the Long Island College Hospital, Brooklyn; St. Mary's Hospital, Brooklyn; and the Brooklyn Hospital.

Women gymnasts in Germany have started a new paper, called "Die deutsche Turnzeitung fur Frauen," the editor of which is Madame Martha Thurin, professor.

On March 8th, 1899, the New Haven Physical Education Society gave an exhibition of physical training in the Yale Gymnasium. The participants were classes from Yale University, New Haven Turn Verein, Anderson's Normal School of Gymnastics and the Young Men's Christian Association, making in all, about two hundred individuals. The exercises consisted of music, marching, apparatus work, calisthenics, games, tumbling, and finally a living pyramid of fifty-five members.

The ten objects of the National Society of Physical Education of England are as follows:

1. Propaganda in favor of physical education.
2. Annual conferences, fetes, recreation and contests.

3. Granting of certificates to masters.
4. Registration of professors.
5. Employment bureau.
6. Legal assistance and advice.
7. Incorporation of societies.
8. Club House at London.
9. Parliamentary representation.
10. Creation of a ministerial office in connection with physical education.

The immunity of the Japanese from rheumatism is attributed by them to their ancient and still universal custom of daily massage.

The Japanese have recently issued a paper devoted to physical training.

In a report of the work of the first school for the feeble-minded in Italy, founded in 1889 by Professor A. Gonnelli-Cioni, the results of the teaching are very favorably commented upon.

The method is essentially practical, being divided into three parts, (1) Physical education, (2) Intellectual education, (3) Technical education. The physical education is applied in different ways to individual pupils, and it is intended to correct impulsive and inco-ordinate movements; to stimulate torpor of the movements; to inculcate the ideas of order and cleanliness. This attained, it is directed to improve the senses, exercise the hearing with various sounds, the sight with manifold lights, the taste with foods, the touch with heat, cold, etc.

The advanced intellectual training follows on the basis established by the physical training.

BOOK NOTICES AND BIBLIOGRAPHY.

La Fatigue Intellectuelle. Par Alfred Binet et Victor Henri. Bibliotheque de Pedagogie et de Psychologie) Paris: C. Reinwald, 1898. Pp. 336. Price $1.75.

Under the strains and exhausting calls of modern civilized life, remarked Francis Galton recently, the power of endurance is rising continually in importance. How to test this power has occupied the attention of more than two score of investigators during the past decade—Kraepelin, Bergerstein, Ebbinghaus, Greissbach, Kemsies, Leser, Richter; and Friedrichs in Germany; Mosso, Maggiora, and Patrizzi in Italy; Binet, Fere, Courtier, Vaschide, and Grasset in France; Galton and Warner in England; Vannod in Switzerland; Key in Sweden, and Hodge, Lombard, Bryan, Gilbert, Miss Holmes, MacDougall, and Delabarre in America. But the results of these numerous investigators have been widely scattered and for the most part are inaccessible to students in need of fatigue results.

Binet and Henri have rendered a real service to the cause of education in general,and physical training in particular, for bringing together the results of these numerous investigators and presenting the same in a form so concise and attractive. The book not only contains a splendid summary of experimental work on muscular and mental fatigue, but it gives also most interesting descriptions of the methods employed in obtaining these results. Illustrations are most numerous and the lay reader will certainly be grateful to the authors for the lucid illustrative descriptions of ergographs, sphymographs, aesthesiometers, and dynamometers.

In discussing the physiological effects of fatigue, the authors note the influence of mental work (1) on the heart, (2) on capillary circulation, (3) on blood pressure, (4) on the temperature of the body, (5) on respiration, (6) on muscular force, and (7) on nutrition.

About a third of the book is devoted to school tests for psychological effects of fatigue. The dictation exercises of Friedrich, the calculation tests of Bergerstein, and the nonsense syllable tests of Ebbinghaus are in turn subjected to critical treatment. In spite of the technical character of the subject matter, the style is delightful and the book easy reading. So much excellent material is brought together in such concise form that an early translation would be welcomed by a large army of American students. The book is poorly bound and there is no index, but these are defects to be avoided in an American translation. This book by Binet and Henri is the initial number of a new series devoted to pedagogy and psychology.

WILL S. MONROE.

Reports on Visitation of Schools in Norway, Denmark and Germany. By Seth T. Stewart, Associate Superintendent of Schools, Department of Education, City of New York. Boroughs of Manhattan and the Bronx. January 1, 1899.

In Norway, the attention given to manual and physical training and household economy was particularly noteworthy. The public schools provide a large gymnasium hall—a separate building—with an additional gymnasium, in some cases, in the school building. Bathing facilities are provided in each school, and free swimming baths for the city. As part of the course of education, each child of certain age takes a shower bath once a week, summer and winter, during the school term, in the schoolhouse. Special teachers are regular teachers with special qualifications and assigned by their principals to special service. They may have special hours for work, but they have the same relation to the salary schedule as all other teachers. They do not go from school to school, but as required by the principal, from class to class within a given school. As a matter of economy, two sets of children and teachers occupy the schools each day; one from eight until twelve o'clock, and the other from twelve until four. It is desired to do away with this method, as the child, the teacher and the classroom are said, in the morning, to be in better condition than in the afternoon. Abnormal children are gathered into separate classes. The city children are given free excursions to the country as a regular part of their education, and similarly the country children are brought to the city. Sickly children are sent free of charge to the country for seven weeks in the summer. The city of Christiana provides a free dinner each day for its school children. This is prepared in a city kitchen and sent in large boxes to places of distribution. The bill of fare includes always bread without butter, and on different days soup, porridge of rice, and meat balls. In Denmark and Germany the same general features obtain. In Denmark, much attention is given to the education of waifs, cripples and imbeciles, the former two classes being trained to self support. In Germany particular emphasis is placed upon industrial education. More time is given to physical training in Copenhagen than in Christiana, and a military officer, who thus receives double pay, is assigned to the supervision of this work in the Danish city, but to the casual observer the result seems to be somewhat in favor of Norway.

J. H. B.

Report on the Vacation Schools and Playgrounds, 1898. By Seth T. Stewart, Associate Superintendent of Schools, Department of Education, City of New York. Boroughs of Manhattan and the Bronx. 1899.

To every one interested in rational and humane education, in child study, in sociologic and philanthropic problems, this report must be full of interest and suggestion. It contains, besides facts and figures relative to the equipment, instruction, attendance and expense of the schools and grounds, outlines of the courses of work in nature study, literature, and manual training, a list of games played and a graded catalogue of children's books used in the circulating libraries connected with the work. Many valuable observations and conclusions are embodied in the report and it is illustrated from numerous photographs.

A most interesting chapter is devoted to child study research, giving tests and measurements, physical and psychological, of two hundred children in the Hebrew quarter of the city. From this it appears that these children are shorter and lighter in weight than the average American boy and girl of the same age, and very deficient in eyesight. The psychological tests included reaction, time and memory. While the number examined was too small to serve as a basis for many general conclusions, the results are full of suggestive material and the methods pursued are described in detail.

There were ten vacation schools offering half day sessions for six weeks. Attendance was voluntary and averaged over 4,000 each day. The cost was $10,000,00. The course of study included kindergarten games and a little formal kindergarten work, supervised play, nature study, literature, modeling, charcoal, ink, and water color brush work, picture study, sewing, wood and iron work. Eight all day, out of town excursions were given to the children.

The playgrounds were separate from the vacation schools, though the use of the same premises is recommended for the future. The playgrounds of 24 schools, 3 recreation piers and 3 kindergarten tents in the parks were opened. They were equipped with sandcourts, games and gymnastic apparatus. The cost, including salaries, was about $15,000.00 and the total attendance was at least 30,000.

A summary given of the services of child study in connection with school work includes special treatment of children delicate or deficient in the body—as the deaf, the blind, the crippled child; in the sensorium—as the dull or apparently stupid; in the mind—as the imbecile or degenerate. In courses of study improper grading will be shown by unusual average time reactions. In time tables or programmes, improper relations of subjects will be shown by fatigue measurements. This child study was conducted by Henry S. Curtis, Ph.D., of Yale and Clark Universities, assisted by George E. Partridge, of Clark University.

J. H. B.

Rational Home Gymnastics—For the "Well" and the "Sick," with Health-points on Walking and Bicycling, and the use of Water and Massage. By Hartvig Nissen. 104 pages. Price 50c. Richard C. Badger & Co., Publishers. Boston, 1898.

The title of this little book is somewhat pretentious considering the large number of subjects suggested and the small number of pages devoted to their treatment. But some one has very aptly said that any one can write a large book, while it takes an artist to write a small one. The table of contents is as follows:

The "Why" and "How."
Description of movements and their effects.
The correct position of the body.
(a) Arm movements.
(b) Leg movements.
(c) Trunk movements.
(d) Head movements.
(e) Compound movements.
Health points on walking and bicycling.
The use of water and massage.
Prescription of exercise.
(a) For the well.
(b) For the sick.

This list hardly gives one a correct idea of the subject treated, but the index in the back of the book is very full and complete. Under the chapter on Prescription of Exercises for the "Well" we find a course of exercises in Free Movements laid out for each day, morning and evening, for six to nine months. Under the heading for the "Sick" a six months' course is also presented, including exercises which are recommended for general weakness, anaemia, and convalescent from nervous prostration, weakness of the lungs and throat, weakness of the digestive organs, dyspepsia and constipation, chronic catarrh of the intestines, obesity, biliousness, hemorrhoids, weakness of the organs of the pelvis, nervous headache and congestion of the head, as well as crooked back, stooping shoulders and lateral curvature of the spine. The book is very well illustrated, Mr. Nissen himself having posed for the different exercises. We take pleasure in recommending it to anyone desiring a course in "Rational Home Gymnastics."

D. A. S.

How To Get Strong, and How To Stay So. By William Blaikie. New York and London, 1898. Harper and Brothers, Publishers. Pp. 510.

The second edition of this popular book has recently appeared in a new and enlarged form, with an addition of some 214 pages more than the first volume contained. The first edition of this book published in 1879, probably did more to arouse a popular interest in physical exercise for health and development than any book that has ever been written. The author himself, once a college athlete, fired with the uncontrolable zeal to make a record or beat some opponent, finally came to the conclusion that the real object of physical training was the improvement of the body. After witnessing the physical break down of scores of men just as they were entering upon a career of usefulness, for the want of a little bodily stamina, he determined to give the results of his observations and experiences in trying to build up a physique. Though the book contained nothing new or startling, it told the simple story of "How to Get Strong," with such a disinterested spirit, and with so much fervor and earnestness in such a vigorous and breezy style, that it won its way at once to the heart of "young and old America," and was read by nearly everybody at all interested in the subject. In the present edition all of the old time vigor and earnestness of purpose is preserved, and much new matter has been introduced. The chapter on "Great Men's Bodies," comprising some 200 pages, is a valuable contribution to the cause of physical training. From the physical educator's point of view, these may be considered as special cases, illustrating the value of a sound body and great physical stamina as a fundamental basis for pre-eminence in any walk of life. This book is not intended to be a guide for professional teachers, and any criticisms from a technical standpoint would be out of place. It will serve a great purpose, however, in awakening a new generation to the importance of physical training, and inspiring them with something of the author's zeal and enthusiasm to work for the development of a good physique as an essential requisite for health, happiness and success.

D. A. S.

Revue scientifique, 15 October: Writing and fatigue, bv Ynteyko—Tactile impressions by Dussand—Weight of the human body in fat and glycogen and a Russian decree against the corset, by Bogoljervow.

Revue des jeux scolaires, September: Congress at Antwerp, Dr. Morinel—English contests, Barodat—A bicycle race of 72 hours, Dr. Eifor.

Cycliste belge illustre: Physiology of effort in bicycling, by Dr. Nippeiseer, 15 September-15 October.

Societe de Biologie, 22 October, 1898: Conditions determining the form of animals, Chudeau—Increase of weight in living beings, Dr. Le Dantee.

Journal d'hygiene, 3 November, 1898, page 521: Physical education of children, translated from the "Schulgesundheitspflegen," Palmberg.

La Presse, 6 November, 1898: An Olympic circus, G. de Lafrete.

Revue des jeux scolaires, November: Physical education and alcoholism, Pirry.

Gymnastique Francaise, November 15, 1898: Defects in gait and scoliosis, L'hermitte—Sugar as a food, Chauveau—Life of Jean Jacques Rousseau (one of a series of articles tracing the history of French gymnastics from Montaigne to the present time)—A criticism of Sandow's "Strength and How to obtain it," by G. Strebly.

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1. Notions d'Anatomie, de Physiologie et de Pathologie Appliquees a l'Orthopedie (a study for the orthopedic mechanician). By Dr. Beurnier, 545 pages, 80 illustrations, price $1.30.

2. Plan d'un enseignement superieur de l'education physique. By Georges Demeny. Publishers, Alcan, 108 Boulevard Saint Germain, Paris.
3. Traite elementaire de Sciences appliquees a la gymnastique. By Perȩs et Rataboul, 200 pages, 62 illustrations.

In Chili a new monthly, "pigmene misulanea de education fiica," has been started.

LIST OF PUBLICATIONS OF THE A. A. A. P. E.

The following publications of the A. A. A. P. E. may be obtained from the Corresponding Secretary, G. W. Fitz, Cambridge, Mass., at the prices given below. The figures enclosed in parentheses indicate reduced price to members.

Annual Report	for 1885,	pp. 8	$1.00
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American Physical Education Review, Vol. II, 1897,		4 Nos. pp. 264, at 50c. (25c.) each,	1.50 (1.00)
American Physical Education Review, Vol. III, 1898,		4 Nos. pp. 322, at 50c. (25c.) each,	1.50 (1.00)
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Index to the Annual Reports, by J. M. Pierce, pp. 11			0.05
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Athletics and Games of the Ancient Greeks, by E. M. Plummer, M.D.			0.30 (0.25)
Title-Page to Volume II of the Review (for binding)			0.02
Bibliography Cards (see p. 66, Volume III, of Review) on standard Library Bureau Cards; per thousand			3.00

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THE MILITARY ATHLETIC LEAGUE TOURNAMENT.

CHARLES H. LUSCOMB

New York, N. Y.

The vigor, importance and success of a nation seems to be greatly dependent upon its aggressiveness, and, as maintained, aggressiveness cannot present itself in the weak or enervated, so the conclusion is imperative that physical development, health and strength are the initial requirements for the steady, intelligent domination necessary to forcefully and successfully advance the fortunes, the standing and the controlling spirit of any country.

The soldier, to be fitted for the fatigues of his service, must be athletically trained, and we find the earliest instruction of the recruit to be such physical exercises as will best produce a symmetrical, evenly developed and supple man. After he has learned how to stand, walk and carry himself, his instruction in the march and the use of arms is taken up.

Recent experiences have plainly indicated that such military instruction as may partially, at least, train to arms the greater number of our young men, is not only a wonderful benefit, but in considering the present reaching out of the country, an absolute requirement of our future course of instruction of the young.

The maintenance of a large regular army is not in accordance with the policy of our democratic form of government, or the desire of our people, and therefore the military spirit must be instilled in the minds of our citizens and the methods and the discipline of the soldier made a part of their preparatory training.

Given the man in whom military discipline has been carefully developed, and the production of the soldier, who readily forms a part of the machinery of the regular army, is rapidly accomplished, and the strong, coherent and effective force organized, to meet the sudden emergencies liable under our system to arise at any moment.

The physical training of the regular soldier and the national guardsmen seems not to have received the close attention in its continuance, calculated to produce the best results.

Exercise should not be a burden or show the form of a task. It must not be monotonous, or it becomes irksome and the subject loses interest.

Hence, athletics must become attractive if the best results are to be realized.

The daily setting up exercises of the infantryman, the stable work of the cavalry, or light batteries, all exercise the muscles; but a constant repetition of this form of development without the stimulation of competition or reward, deadens the intellectual appreciation of the individual and deprives the exercise of its most beneficial effects.

The Military Athletic League, organized in New York by a number of veteran National Guard officers, enters the field of attractive physical work in a manner that has commended itself to those best qualified to judge and express opinion, and the pronounced approval of General Miles, General Merritt, General Corbin, Admiral Philip, Governor Roosevelt, General Roe and other distinguished Army, Navy and National Guard officers and their active coöperation in the annual tournaments of the League, has made its establishment not only a permanent feature in military athletics, but secured in its exhibitions a telling educational lesson to the public at large of the efficiency and manly physical excellence of the American soldier, sailor and guardsmen.

At the annual tournaments held at Madison Square Garden every spring, details from the regular service, infantry, artillery and cavalry, and the U. S. Navy and Marine Corps, are ordered to attend for the purpose of exhibiting to the public their proficiency in the refinements of the several branches of the service. The National Guard sends its well-instructed organizations to contribute its share. The infantry presents the battle exercises, wall scaling and the gymnastic drill, both with and without pieces; the cavalry, mounted gymnastics, rough riding, dismounting and mounting while hurdle jumping, throwing horses, wrestling on horseback; the artillery the light battery drill with 3.2 inch guns and with gatlings, limbering and unlimbering pieces, dismounting and mounting pieces, carriages and caissons; all requiring skill, strength and dexterity, developed to a remarkable degree.

The "Jackies" and the Naval Militia, with single stick and broadsword drills, mêlées, and landing drills with one pounders, exhibit the quickness and sharpness in action so characteristic of the American sailor, and give the most significant explanation of the success of the American arms.

The tournaments of the Military Athletic League made a profound impression upon the public mind and created a popular interest of exceptional value. The people saw the clean, vigorous, well-prepared, sharply executed work of those trained in military exercises. Everything about them was bright, clear cut, manly and determined. It was an exhibition of the American soldier and sailor, rarely the fortune of the civilian to witness, that made the blood of every spectator run a little faster, proud of his nationality, that led him to walk erect, throw back his shoulders, swing into a better stride, and carry into his own negligent habits a bit of the bearing of the military athlete. So it was educating the public.

In the future of the Military Athletic League, should it meet the approval of the Army and Navy, it is hoped that competitive features may be included in its tournaments; that selected troops from different cavalry regiments may be seen in competition in the general or special athletic features in that branch of the service, that several light batteries may present themselves in a selected programme of events and that the infantry and marines may try for the best exhibition of the work of the soldier on foot.

For this purpose the Military League might well establish regular prizes, to be annually awarded for competitions each year between such organizations as the Secretaries of War and Navy might enter, as best fitted to represent the physical training of the soldier and sailor.

Such competition is healthy and inspires the most earnest attention to faithful and consistent work.

The athlete must be temperate, careful of his physical condition, thoughtful as to his health, drink and food, free from excess or indulgence, calm, intelligent and conservative in his judgment, ready and responsive in his discipline, quick to think and act, trained to instant obedience to command. So trained and educated, he is the ideal soldier. And with such a soldier athlete the American General may enter upon his campaign, free from his principal danger,—the health of his command,—and with almost his maximum of strength available.

With the profits from the annual tournaments the Military Athletic League addresses itself to the development of athletics in the Army, Navy and National Guard and Naval Militia, equipping army posts and ships of the navy with gymnastic apparatus, boxing gloves, single sticks, foils and masks, chest weights, etc., to such extent as it is able; organizes competitions in National Guard regiments, troops, batteries and separate companies and the naval militia, in the various athletic sports in which they are interested, providing prizes, and, where necessary, assisting them in the equipment required for such work.

During the tournament of 1899, one afternoon was practically devoted to the children, military schools for boys giving exhibitions in connection with the regular infantry, cavalry and artillery, and the charitable juvenile institutions receiving free admission upon presenting themselves in a body and under the properly authorized officials.

As a matter of education upon soldierly lines, no stronger object lesson could have been provided, nor one better calculated to impress the young with the attractive side of military training, or to develop the natural inherent loyalty of the American to the colors .represented by the soldier in the uniform of the service.

Having allied itself with the Amateur Athletic Union, and the League of American Wheelmen, the Military Athletic League controls and supervises its own athletics, maintaining its own amateur rule, and regulating all competitions among its members, promoting athletic sports among all soldiers and sailors, national and state, and annually offering to the public the result of a combined military and athletic work and training.

A CALISTHENIC AND SETTING-UP DRILL.

HENRY G. BEYER,
U. S. Navy.

It is a well recognized biological law that the structure of any living tissue or organ determines also the functions of such organ or tissue. It is, moreover, also a generally acknowledged and accepted physiological law that upon the proper normal exercise of certain functions depends the fullest possible growth and development of the tissue or organ concerned.

There exists, then, in accordance with these laws, a well defined reciprocal relation between structure and function in every thought, word and act of our lives. It is, furthermore, very evident that, if due and proper attention could under all circumstances and conditions be paid to this important mutual relation, if we could, in other words, so regulate and arrange things which influence our lives, that this mutual or reciprocal influence existing between structure and function in the animate world, could always be kept and remain well within physiological limits, the greatest, fullest and most perfect physical, mental and all-around development would most undoubtedly be attained.

All education, whether we call it physical or mental, depends upon the exercise of the functions of certain organs. The artificial suppression or elimination of any of the various functions is invariably followed by the certain and complete disappearance and elimination of the structure upon which that function depends. On the other hand, the careful, well systematized, physiological exercise of any and every function is invariably followed by a corresponding growth and development of the organ from which this function derives its source and power. This great biological law recognizes the existence of no difference between the various tissues or organs, but is usually true for all tissues and organs of the animal body. It applies with equal force to nerve tissue, muscular tissue and gland tissue. It makes no difference whether we call the proper exercise of the various functions of nerve tissue, as practiced in our schools, mental education, and that of the muscular tissue, as is done in gymnasia, gymnastics or athletics, or that of the stomach, secretion; their products brain-work, muscular work and digestion.

As functions of a living organism, all three are subject to the same biological law and may be fully developed under favorable conditions, and the organs and tissues upon which they depend can be impeded in their normal growth and crippled, after having attained their full development, by unfavorable and unphysiological influences and conditions.

In the above sense, any system of education, having for its object the development of a special organ or tissue of the body, must first agree with the practical lessons taught by physiology, before it can be pronounced safe, that is, at least free from harm.

Practically, experience has shown that no one single organ in a living body can be developed, without the same cause developing it, also, indirectly, influencing the development of other organs, near or remote. It is owing to this interdependence of the different organs, this mutual support and sympathy, as it were, which one organ receives from and spends for another, that the limits of the physiological range, within which any particular organ or tissue may be favorably influenced through artificial outside causes, are very wide. It is also owing to this wise provision in nature that the various systems of gymnastics, for instance, have not produced more harm.

In presenting this drill, let it be borne in mind that the object of the drill is, primarily, to develop healthy bodies and to maintain in them a high standard of organic life. It is, furthermore, intended to correct unsymmetrical and faulty carriage due to poor muscular development in certain parts and to keep the men in such a condition of physical training and development that they may be pushed up to their maximum limit of power and endurance for any purpose whatsoever, in the shortest possible time, whenever circumstances require this to be done.

As a setting-up drill, it will be found especially valuable. The number of exercises in the usual setting-up drills is too small and too limited to be of much good, and, although the number of muscular movements in this drill seems rather large, it will be found, after a few trials, that it must be so. The exercises have been so arranged that they follow one another in the natural order and their succession will, therefore, soon be learned by the men. In my experience, going through the drill twice slowly, is quite sufficient to teach it to a large class.

I cannot close these few introductory remarks without a word of warning. Attempts have recently been made—successful ones at that—to put soldiers through certain exercises with rifles, which exercises have nothing whatever to do with the actual usage of such weapons. From a purely military point of view such attempts should be heartily discouraged, for they must tend to develop an inclination, unhappily already too strongly rooted in our boys, to turn into play what must always be looked upon as serious business, and to use lightly what they ought to be taught from the beginning, never to consider other than a dangerous weapon and not a plaything. The results of such exercises must be accidents of the most unfortunate character. A soldier must be so trained, that the mere sight of a gun will suggest to his mind no other movements than those intended for the proper and purposive use of the weapon.

DRILL.

The class is formed in single rank, each individual assumes the first position as he falls into line. The men, after having been properly dressed and aligned, count fours. The command "Open ranks, March!" is executed as follows: The numbers 1 take two steps to the front; numbers 2 stand fast; numbers 3 take two steps to the rear, and numbers 4 take four steps to the rear. Or, after fourths have been counted, numbers 1 stand fast; numbers 2 take two steps to the front; numbers 3 take four steps to the front, and numbers 4 six steps to the front.

In accordance with the room and the position which the instructor finds it convenient to occupy, the class may either remain in this position or it may also be made to face right or left.

These formations leave ample space between the individual members of the class for the unhampered performance of all the exercises comprised in the drill and will also permit the instructor to pass in between and among them for the purpose of correcting particularly awkward positions that are sometimes assumed unconsciously by some of those who have not understood the commands or have never been drilled before. Every exercise in any of the several groups may, of course, be repeated any desired number of times. Since, however, it is rather desirable to put the class through all the eight groups at one time, to make the exercise complete, as soon as the details will have been mastered, it will be found best in the beginning and for the purpose of preventing unnecessary fatigue, to commence by performing each exercise five times in succession and increase that number very gradually and in perfect harmony with the gradually increasing strength and capacity of the class. Even under these conditions, it will be found a good plan to carefully watch the class and to give them an occasional period of a few minutes of rest whenever signs of fatigue become at all apparent. During all the exercises the mouth should be kept closed, breathing should be deep, slow and thorough; if indoors, the air should be pure and the temperature about 65° F. A quick run on the track should be taken at the end of the drill, not carried to breathlessness, and a short shower-bath should be taken after all.

EXERCISES.

I. GROUP: FOOT, ANKLE AND LEG EXERCISES.

All the exercises in this group are performed with hands on hips; constant attention must be given to correct positions of trunk on hips and of neck and head on shoulders. Repeat.

1. On toes rise, Up! Rise on toes as high as you can, maintaining body and head in erect position; Down! Lower heels to the ground and resume first position.
2. Close toes and rise, Up! Down! Same as preceding.
3. On right toes rise, Up! Bear entire weight of erect body on right toes, inclining slightly to the right side; Down! Resume first position.
4. On left toes rise, Up! Bear body weight on left toes; Down!
5. Alternately on right and left toes, rise, Up! Down!
6. Close toes, rise and Spring! A springing movement is given to the body by flexing and extending the foot upon the leg from the ankle-joint, feet not leaving the ground, body and head erect.
7. Open toes, rise and Spring! Execute as preceding.
8. Rise on right toes and rest on left heel, Up! Rise, bearing body weight on toes of right foot, flexing, at the same time, left foot on left leg, left heel resting on the floor; Down! Resume first position.
9. Rise on left toes and rest on right heel, Up! Down! Same as preceding.
10. Alternate the two preceding exercises, Right! same as 8; Left! same as 9; at Three! assume first position.
11. Stand alternately on both heels and toes, Toes, Heels; at Three! resume first position.

II. GROUP: BALANCING EXERCISES.

In this group of exercises, when the order is given for extending the leg forward, sideways or backward, the leg must be kept straight or fully extended, the toes must point in the direction in which the extended leg moves. In order to make the different movements of value as a balancing exercise and to prevent them from deteriorating into mere sliding movements for the leg, the leg must be kept for a few seconds in the positions which it is made to assume, and for this purpose, the instructor counts from one to four. At One! the leg is extended and at Four! it is returned to its original position. In the last two exercises, 9 and 10, each count means a different movement.

1. Right leg forward, Extend! Right leg is extended from the hip joint forward and upward, toes pointing forward or in the direction in which the sole of the foot is pointing; at Four! leg returns to orignal position.

2. Left leg forward, Extend! Execute same as preceding.

3. Right leg backward, Extend! Execute same as preceding.

4. Left leg backward, Extend! Execute same as preceding.

5. Right leg right sideways, Extend! Execute same as preceding.

6. Left leg left sideways, Extend! Execute same as preceding.

7. Right leg forward and backward, Extend!

8. Left leg forward and backward, Extend!

9. Right leg forward, sideways, backward, Extend!

10. Left leg forward, sideways and backward, Extend!

III. GROUP: KNEE EXERCISES.

1. Right knee, Up! The knee is raised and held at least two seconds in such a position that the leg and thigh form a right angle, the thigh a right angle with the long axis of the trunk, toes pointing downward. The instructor counts: Up! two, three, Down! At Down! the foot returns to its original position.

2. Left knee, Up! Execute and count the same as in preceding example.

3. Right knee, Up! Knee is raised into the position as in the preceding exercise. When the order is given: Kick! the leg is extended, the foot thrown forward, toes pointing forward; at Drop! the foot or leg resumes the position at right angles with the thigh, the toes pointing downward, from which position the manœuvre may be repeated; at Down! the first position is resumed. There being four different movements in this exercise, the instructor may also time them by counting from one to four.

4. Left knee, Up! Execute same as preceding.

5. Right knee sideways, Raise! Knee is raised outward to the right from the body and in a plane with the anterior surface of the body; the remainder of the exercise is the same as in the preceding exercise.

6. Left knee left sideways, Raise! As preceding.

7. Right thigh with right foot, Kick! Flex right leg quickly, throwing foot backward and upward until sole of foot touches some point in the rear of thigh and bring foot back into position without any further order.

8. Left thigh with left foot, Kick! Execute in same manner as preceding.

9. Both thighs and both feet, Kick! Jump up from the floor, quickly kick both thighs with both feet simultaneously and resume first position without further order.

10. Both hands forward, Extend! Hands are thrown forward, palms down, arms extended and parallel to one another, held at right angles with the long axis of the body. Left hand with right foot, Kick! Foot is quickly raised until toes touch palm of hand, leg kept perfectly straight, movement comes entirely from hip joint; body kept erect and back straight.

11. Both hands forward, Extend! Same as previous example. Right hand with left foot, Kick! Same as preceding (No. 10).

12. Arms overhead, right Circle! Arms are raised overhead, body bent from hips to right side, downward, from right to left side and from below upward on left side until reaching the position from which the start was made; a complete circle is described with hands.

13. Arms overhead, left Circle! The reverse of the preceding.

14. Arms overhead, trunk forward, Bend! Arms are raised overhead, body bent forward and downward, hands touch the floor and brought back to the starting point.

15. Arms overhead, trunk forward and arms backward, Bend! Throw body forward, arms forward, downward and up in the rear of the body, palms looking upward and forward; legs straight, face looking forward, come back to starting point without further order; resume first position, lowering arms obliquely backward to side of body.

(To be continued.)

MENTAL FATIGUE (Continued).

HERMAN T. LUKENS

California, Pa.

Results.—Although there are, perhaps, no new facts directly applicable to schools, when we sift out the practical results of all the studies thus far made on mental fatigue, yet there are many ways in which school work is feeling the effect of the additional definiteness gradually coming into the subject. For, in the first place, the subject is being cleared up by the introduction of exact distinctions. Attention is being given to the signs of fatigue in recitation. No intellectual work is possible without leaving its impression on the organism. Every one must become inured to fatigue in order to work most effectively. Hence the query, "How far should I permit a child to become fatigued?" Binet and Henri would answer, "There is over-fatigue every time when recovery requires exceptional conditions or interferes in any way with one's ordinary course of daily life. Normal fatigue is repaired of itself without our thinking of it or taking any special precautions."

Wagner gives us the following table of school subjects arranged according to their fatigue effect:

Mathematics	100	Arithmetic	82
Latin	91	French	82
Greek	90	German (mother tongue)	82
Gymnastics	90	Nature Study	80
History	85	Drawing	77
Geography	85	Religion	77

On the basis of his ergographic tests Kemsies found the following order: (1) Gymnastics, (2) Mathematics, (3) Foreign languages, (4) Religion, (5) German (mother tongue), (6) Nature Study and Geography, (7) History, and (8) Singing and Drawing.* But, as Wagner remarks, the teacher's personality has in-

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*Dankwarth thinks that the influence of the singing period is not to increase the fatigue so much as to dissipate the attention, because he found *after* the singing the best results of the day, but *during* the period a great reduction in working power.

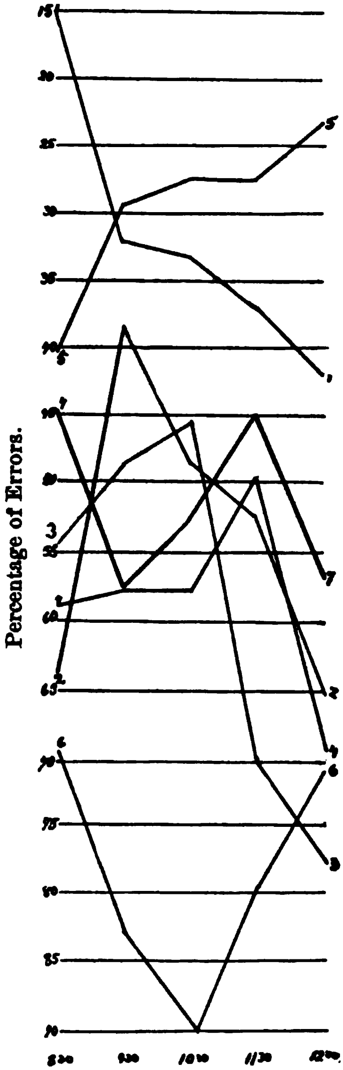


FIG. 1.

Individuality of Fatigue (Kemsies).

comparably more to do with that degree of fatigue at the end of the period than has the character of the subject taught. It is oftenest the best teachers and the best pupils who show the most fatigue, simply because they have done the most work. Kraepelin's paradox, "the present arrangement of school programmes makes it a necessity to have tedious teachers in whose classes the pupils may rest themselves by inattentiveness," becomes intelligible, and raises the question, Would we not accomplish more if our work were intenser, by always keeping our pupils at their best?

One of the very most interesting points brought out by these studies is the individual difference in power to resist fatigue. "Every human being," says Kraepelin, "has his own peculiar way of work, which usually shows itself regularly in the same manner during every working period." "Fatigue is thus seen to be a fundamental characteristic of each individual's personal make-up, which, though subject in a measure to outside influences, yet in the main determines conclusively his power of work." The ergograph has shown in a most graphic form the individual curves of muscular fatigue. The studies on mental fatigue leave no room for doubt that there is as great individuality in the psychic fatiguability.

Kemsies found the following curves (Fig. 1) to represent the quality of work as measured by his arithmetic tests in one of the Berlin Volkschulen. He has arranged them in a series of five, according to the time of culmination of the working power. In the *first* the maximum of work was accomplished at 8.30 a. m.; in the *second* at 9.30 a. m.; in the *third* at 10.30 a. m.; in the *fourth* at 11.30 a. m.; in the *fifth* at the close of school at 12.30.

These curves are exceedingly interesting. It will be noticed that Curve 5 represents the greatest amount of good work, and that Curve 1 comes next. The latter represents a healthy but easily fatigued pupil, who would work better if he had frequent recesses. The former (Curve 5) represents a pupil who has great endurance, is not easily fatigued, but is slow in getting "warmed up" to his work, and hence works better with no recess. Between these two extremes three intermediate stages are represented (Curves 2, 3, 4), but it will be noted that these all represent inferior work, deteriorating as you go from 2 to 3 and 4. These three are, perhaps, all of them pathological, and correspond to Dr. Wagner's neuropathic group. The breaking strain comes suddenly and continued work may lead to extreme exhaustion. Properly adjusted recesses are an imperative necessity for these pupils.

In Curves 6 and 7 we have a fourth type illustrated, namely, those who soon become fatigued, but by continuing work recover in large measure their power and apparently, for the time being, overcome the fatigue. In physical exercise we have the same phenomenon and call it second breath. Mr. Partridge has collected (Ped. Sem., IV, p. 372) many typical instances both of physical and of mental second breath. In some cases a periodicity is noted, with alternation of tire and rest, if the work is very long continued. Dr. Lombard found similar periodicity in muscular fatigue, his muscle making recovery five times during twelve minutes. Dr. Cowles describes mental second breath under the head of pathological fatigue. His explanation is that the fatigue sense is exhausted and hence no longer reports the true condition of the body.

The two following cases are cited by Mr. Partridge:

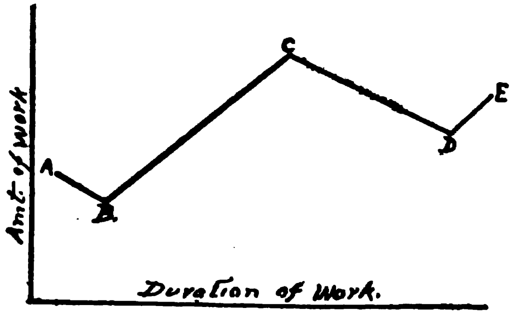
Girl of 17 years: "One afternoon I studied until I was very tired and, stopping only for supper, continued on the same lesson until I could hardly think, when suddenly my mind became fresh, my interest quicker, and I found myself once more able to study. When I went to bed I was unable to sleep, altho' very tired."

Boy of 19 years: "Being employed during the day-time, I had to be up very late at night in order to get my lessons. On several occasions I worked all night. About 10 o'clock, usually, I would feel a drowsiness come over me and I would begin to be sleepy. I took exercise of all kinds, walked, and did everything I could to drive the sleepiness away. Some-

times I would keep on writing, until all of a sudden the sleepiness had left me — I gained new vigor, I felt fresh and could work as well as ever for hours afterward. After a year's experience, I found that anything eaten or drunk before the fatigue period would cause the drowsiness to come on quicker, and would make it harder to overcome. During this year my average time of sleep used to be four to five hours, but it was the sleep of the just when I did sleep. My health was injured, however."

Should not the teacher take account of the above types of pupils? The question of recess is not to be decided in the same way for all pupils. The question of the advisability of working till the second breath stage is reached demands further investigation. Some people seem unable to do their best without it. But the whole matter of evening work and its bearing on the neuroses of student life is still an open problem. "It is entirely within the limit of possibility," remarks Mr. Partridge, "that the methods of work, and the division of hours of labor, as commonly practiced, particularly in our colleges, is radically wrong."

The general curve of rapidity in mental work is governed by the ratio between the practice effect and the fatigue effect. Its graphic representation is as follows (Binet and Henri after Oehrn):



A-B Initial Distraction.
B-C Practice Effect Predominates.
C-D Fatigue Effect Predominates.
D-E End Glow.

FIG. 2. Practice and Fatigue Effects.

Those who attain the maximum (C) quickly have a feeble increase due to practice (B to C) and sink more rapidly under the influence of fatigue (to D). While, on the other hand, in general, those who take a long time to reach their maximum rate, attain a higher rate and have greater resistance to fatigue. In either case there is a short period at the commencement marked by depression due to the overcoming of initial distraction, and at the end a rise in anticipation of the successful completion of the work.

Any person's rate of work, of course, varies greatly for different sorts of mental work. A rapid reckoner may be slow to learn by heart, or vice versa. We may, therefore, look forward to the time when tests of this kind will enable us to describe with considerable exactness the particular endowment of each individual in this respect. One person in Kraepelin's laboratory accomplished 2½ times as much in the same time as another student of nearly the same age. Some people live far intenser lives than others.

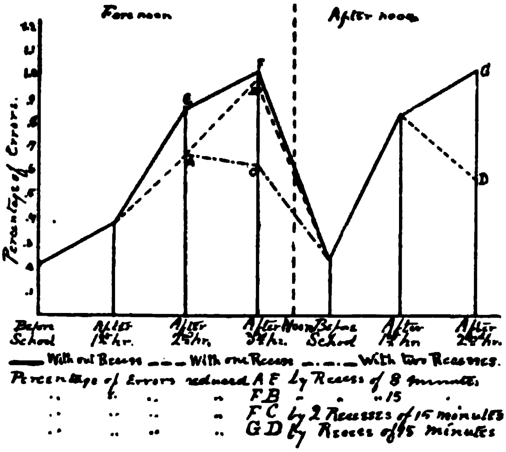


FIG. 3. Influence of Recesses (After Friedrich).

The above curves represent the fatigue for a school day, first without recess at all, secondly with one recess forenoon and afternoon, and thirdly, with two recesses in the forenoon and one in the afternoon.

The fatigue effect is quickly dispelled by rest, whereas the practice effect persists. Hence, if after an interval for rest, we recommence work, the rate of work this second time is greater than it was the first. In 1896, Amberg, working with Kraepelin, attempted to determine what amount of time was required to overcome the fatigue, and whether the practice effect continued indefinitely or whether it disappeared if one omitted to work for a certain number of hours or days. He found the practice effect of a single hour of work was preserved and carried over to the morrow, and was not entirely lost even after a lapse of thirty-eight to forty-seven hours.

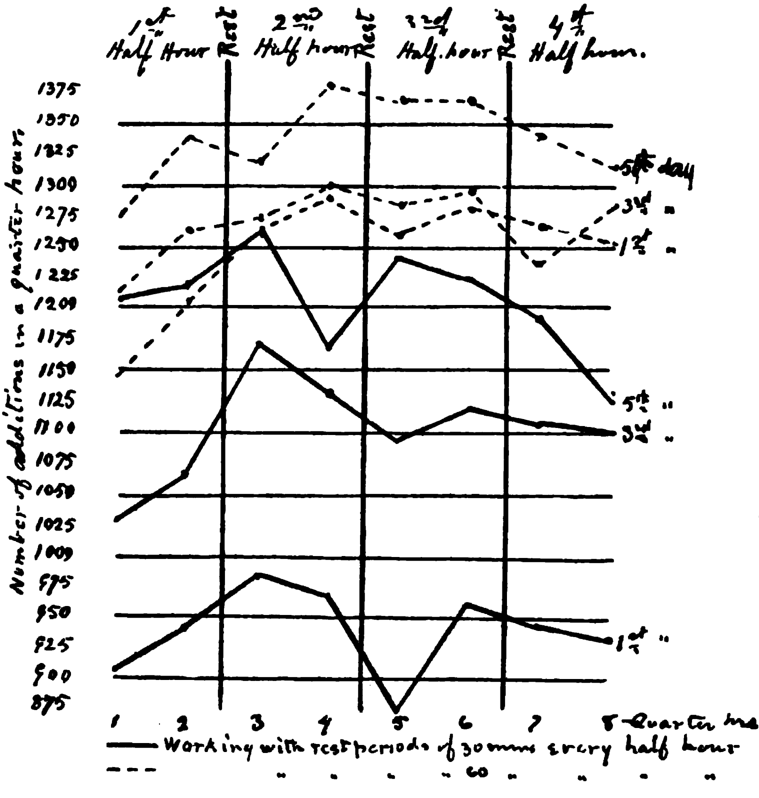


FIG. 4. Influence of Rest Periods.*

A rest of five minutes after a half-hour's work in adding produced a slightly favorable effect, but a rest of fifteen minutes exerted no appreciable influence. If, however, the work consisted in learning a series of figures by heart, then such a rest period of fifteen minutes was found favorable, or if the period of work was extended to one hour. Lastly, by alternating five minutes of work with five minutes of rest for two hours, Amberg found an unfavorable influence at first, which, however, toward the end of the period was converted into an increase in the amount of work. He believes these results are explained by the existence of a third factor, *the mental inertia.* It takes a certain time for us to get started and warmed up to our work, and after working awhile we prefer to continue rather than to stop and lose this momentum we have acquired. If fatigue becomes too great, as after an hour's additions, then the rest period helps. We see here wherein those who fatigue slowly have the great advantage; they gain the full favorable effects of practice and of the mental warming up, which those who soon tire, are obliged to lose by stopping to rest.

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*After Rivers and Kraepelin with table in Binet and Henri.

Rivers and Kraepelin studied the effects of longer rest periods of a half-hour and an hour.

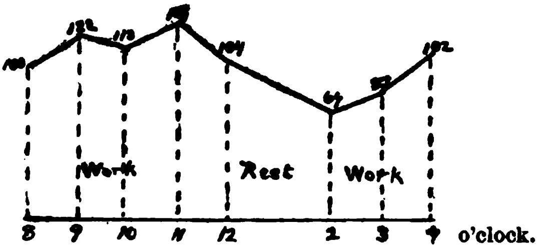


FIG. 5. Fatigue curve by ergograph.

With rest periods of thirty minutes, we see in Figure 4 that a gain was made after the first rest period every time, and after the second rest period one time out of three. The third rest period, however, did not suffice for recovery from fatigue.

With rest periods of one hour, we find essentially different results. In the first fifteen minutes after such a long rest one is unable to do as much as in the second fifteen minutes of the working period. The rest period is shown to be too long, and one loses both in practice effect and in momentum.

Comparing the two series with reference to time of maximum work we find that with rest periods of thirty minutes the greatest amount of work was done in the third quarter-hour, but with rest periods of one hour each work culminated in the fourth quarter-hour.

Robert Keller (Winterthur) gives an interesting fatigue curve for a day (Fig. 5), based on ergographic measurements each hour. We see the maximum at 11 a. m., the depression following the noon meal and rest, and lastly the continued rise of the curve in the afternoon till 4 o'clock, when even more work is done than at the beginning of the morning session.

Another curve by Keller (Fig. 6) shows how greatly mental work is affected by previous muscular exertion. The dotted line represents the curve of fatigue (reading) after having read German for two hours; the full line shows the same work after two hours of physical exercise. Notice that the recovery from mental fatigue is slower than from muscular fatigue.

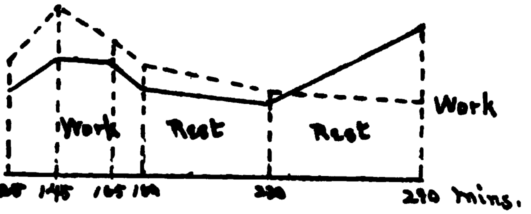


FIG. 6. Relation of exercise to fatigue.

Proposals.—Zimmermann proposes half-hour lessons. Preyer says ten to twenty-five minutes is the longest period allowable for continued mental effort. Burgerstein would have periods of three-quarters of an hour each. Laser thinks no change is necessary. Schulze believes that he has demonstrated that children twelve and a half years old do more work in hour periods than in half-hour periods.

Brahn would have the periods 20 to 25 minutes in length for children six to nine years of age, 30 to 35 minutes for children nine to twelve, and 40 to 50 minutes for older children.

Schiller gives the program for the Giessen gymnasium (since 1883) and recommends it as the nearest approximation to the hygienic conditions indicated by the studies thus far made on the effect of recess. The following shows the distribution of time:

	I period.		II period.		III period.		IV period.		V period.
Vorschule and V and VI.	55 min.	Recess 10 min.	48 min.	Recess 15 min.	47 min.	Recess 10 min.	50 min.	Recess 10 min.	40 min.
Classes I, II, III, IV.	60 min.	No Recess	53 min.	Recess 15 min.	47 min.	Recess 10 min.	50 min.	Recess 10 min.	40 min.

Kraepelin would have the school program based on an alternation of easy and difficult subjects so that the pupils might recover in the easy period from the fatigue of previous hour.

Superintendent Balliet (Springfield, 1898) has arranged the course of study so that the more difficult studies, like arithmetic and geography, come during the autumn and winter months, and the easier studies and such as children are generally fond of, like history and literature, during the warm weather of spring and early summer.

Problems.—As we keep studying the problem of fatigue, more and more clearly defined questions open up, new distinctions are made and old ones more accurately discriminated. Kraepelin has done as much as any one to open up these definitely conceived new problems. Among such are the distinctions and relations between practice effect and fatigue effect, between weariness and fatigue, between initial interest and the pleasure of accomplishment, between duration of work and duration of recuperation, between alternation of easy and difficult and mere change of subject, between rate and quality of work, etc.

Since all action whatever, play as well as work, leads inevitably to fatigue, it becomes a highly practical problem to distinguish between normal or healthy fatigue and abnormal or pathological tire. Healthy children do not object to exertion, and they must be brought up to work and inured to fatigue; they must even learn to work after they begin to feel tired. But we should know the chronological order of the signs of incipient fatigue and watch closely that the weaklings do not have burdens laid upon them too grievous for them to bear. Kraepelin, one of the foremost alienists of Germany, reminds us that the hundreds of thousands of patients in our insane hospitals were all school children once. How many of these came out of school weaker than they entered?

One of the problems for the future is, how much mental exertion should be required of each age or period of development? When is it safest to make the strain greatest? Without intense work children will never learn what exertion means. But they must not be allowed to overdo it at critical periods in their development. We are forced to make the most individual study of each child's strength and of his steps in fatiguing. It is to be hoped that the official investigations, now in progress, into the strength and fatigue of the public school children in Chicago will show the feasibility and desirability of such work. But far more individual and detailed examinations must be made of each child

EFFECTS PRODUCED BY MENTAL WORK.

Duration of Mental Work	Less than one min.	5 min.	15 min.	30 min.	60 min.	90 min.	120 min.	Several Hours	Several Days	Several Months
PHYSIOLOGICAL EFFECTS.										
Circulation										
Number of pulsation	increase	increase	increase	decrease	decrease	decrease	decrease	decrease	....	....
Volume of the brain	increase	increase	....	....	....	....	....	....	....	....
Volume of the hand	decrease	increase	....	....	....	....	....	....	....	....
Dicrotism of the pulse	....	weakening	weakening	weakening	weakening	weakening	weakening	weakening	....	....
Blood pressure	....	increase	increase	....	....	....	....	....	....	....
Respiration										
Number of respirations	increase	increase	decrease	....	....	....	....	....	....	....
Amplitude of the respirations	decrease	decrease	increase	....	....	....	....	....	....	....
Carbonic Acid expired	....	....	increase	increase	....	....	....	....	....	....
Oxygen absorbed	....	....	increase	increase	....	....	....	....	....	....
Body temperature	....	....	increase	increase	....	....	....	....	....	....
Muscular System										
Eye muscles	relaxed	relaxed	relaxed	....	....	....	....	....	....	....
Dynamometer test	increase	increase	....	....	....	....	....	....	....	....
Ergograph test	....	....	....	increase (Keller)	decrease	decrease	decrease	decrease	....	....
Nutritive Changes										
Quantity of urine	....	....	....	....	....	....	....	increase	increase	....
Nitrogen in the urine	....	....	....	....	....	....	....	decrease	decrease	....
Phosphoric Acid united with earths	....	....	....	....	....	....	....	increase	increase	....
Phosphoric Acid united with alkalis.	....	....	....	....	....	....	....	decrease	decrease	....
Consumption of bread	....	....	....	....	....	....	....	....	....	decrease
Weight of body	....	....	....	....	....	....	....	....	....	decrease
PSYCHOLOGICAL EFFECTS.										
Rapidity of continued mental work:—										
Addition	....	decrease	increase	increase	increase	decrease	decrease	....	....	....
Memory for numbers	....	decrease	increase	increase	decrease	decrease	decrease	....	....	....
Duration of reactions with choice	....	....	....	....	increase	....	....	....	....	....
Verbal reactions	....	....	....	....	increase	....	....	....	....	....
Memory for numbers	....	....	....	....	decrease	....	....	....	....	....
Rapidity of reading	....	....	....	....	decrease	....	....	....	....	....
Number of mistakes in dictation	....	....	increase	increase	increase	increase	increase	increase	....	....
Number of mistakes in arithmetic	....	....	increase	increase	increase	increase	increase	increase	....	....
Number of mistakes in filling out omitted words (Ebbinghaus)	....	....	....	....	increase	increase	increase	increase	....	....
Æsthesiometer test	....	....	....	....	increase	increase	increase	increase	increase	....

than are there proposed, for fatigue is the exponent of the whole personality, and as characteristic as is a person's face. These detailed examinations would bring to light individual endowments as well as individual deficiencies. The power of concentration of attention might even be tested and measured by the influence of distractions on the rate and quality of the work done. One other very important factor in the individuality of fatigue is the individual rate of reparation or recovery. The investigation must also be extended over a much longer time, embracing seasonal and annual variations.

Finally, coöperation, as Binet and Henri urge, is necessary for successful work on a great scale. All the signs of fatigue must be studied, and especially is it desirable to know the inter-relation of these signs, so that studies by one test may be compared with others made by any other test.

The table of physiological and psychological effects (in the main taken from Binet and Henri with slight additions), maps out in one conspectus the immense field, and shows some of the numerous gaps in the work needing to be filled.

BIBLIOGRAPHY.

AMBERG:
Ueber den Einfluss der Arbeitspausen auf die geistige Leistungsfähigkeit. Psych. Arbeiten I. Pp. 300-377.

BAKER:
Fatigue in School Children. Educational Rev., Vol. XV, pp. 34-39.

BETTMANN:
Die Beeinflussung einfacher psychischer Vorgänge durch körperliche und geistige Arbeit. Leipzig, 1894. Pp. 63. Sonder-Abdruck aus Psych. Arbeiten I. Pp. 152-206.

BINET & HENRI:
La Fatigue intellectuelle. Pp. 338. Paris, 1898. Schleicher Frères.

BRAHN, M.
Die Geisteshygiene in der Schule. Deutsche Mediz. Wochenschr, 1897. No. 26.

BURGERSTEIN, LEO:
Arbeits-Kurve einer Schulstunde. 1891. Sonder-Abdruck aus Zeitschr. für Schulgesundheitspflege.

BRYAN, W. L.:
Development of Voluntary Motor Ability. Amer. Jour. of Psych., Vol. V., pp. 125-204.

COWLES, DR. E.:

(1) Neurasthenia and its Mental Symptoms. Boston, Clapp & Son, 1891. Pp. 104.

(2) The Mental Symptoms of Fatigue. Reprinted from Transactions of the New York State Med. Ass., 1893. Pp. 25. New York. Fless & Ridge.

DANKWARTH:

Die geistige Leistungsfähigkeit der Schüler unter verschiedenen Umständen. Festschrift zur XI. Generalvers. d. allg. sächs. Lehrervereins. Review in Ztschrift f. Schlges. 1898. No. 12.

DONALDSON, H. H.:

Growth of the Brain. London, 1897. Pp. 309-323.

DRESSLAR, F. B.:

Fatigue. Ped. Sem. II., pp. 102-106.

EBBINGHAUS, H.:

Eine neue Methode zur Prüfung geistiger Fähigkeiten und ihre Anwendung bei Schulkindern. Zeit. für Psych. and Phys. d. Sinnesorgane, Band XIII, Heft 6.

ELSENHANS, TH.:

Nachtrag zu Ebbinghaus's "Kombinationsmethode." Zeit. f. Psych. and Phys. d. Sinnesorgane, Band XIII, Heft 6.

FRIEDRICH, JOH.:

Untersuchungen über die Einflüsse der Arbeitsdauer und der Arbeitspausen auf die geistige Leistungsfähigkeiten der Schulkinder. Pp. 55. Hamburg, 1897. Voss.

GALTON, FRANCIS:

Remarks on Replies by Teachers to Questions respecting Mental Fatigue. Jour. Anthrop. Inst., April, 1888.

GILBERT, J. A.:

Mental and Physical Development of School Children. Studies from Yale Psych. Lab., Vol. II, pp. 63-68.

GRIESBACH, H.:

Energetik und Hygiene des Nerven-Systems in der Schule. München and Leipzig. Pp. 95.

HOEPFNER:

Ueber die geistige Ermüdung der Schulkinder. Ztsch. f. Psych. and Phys. d. Sinn., VI, p. 191 ff.

HOLMES, MARION:

Fatigue of the School-hour. Ped. Sem. III. 2, pp. 213-234.

JANKE, O.:

Ueber Ermüdung und Ermüdungsmessungen. Päd. Zeitung, Nos. 32, 33, 35, 36, 49, 50, 1897.

Januschke:
Einige Daten zur gesundheitsmässigen Regelung unserer Schulverhältnisse. Ztschft. f. d. Realschwesen, XIX, 11, pp. 641-666.

Keller, Robert:
Päd. psychometrische Studien. Biologisches Centralblatt. Nos. 1, 2, 9, 1894. No. 12, 1897.

Kemsies, Ferdinand:
Arbeitshygiene der Schule auf Grund von Ermüdungsmessungen. Berlin, 1898. Pp. 64.

Key, Axel:
Schulhygienische Untersuchungen. Deutsch v. Burgerstein. Hamburg and Leipzig, 1889.

Kraepelin, Emil: (Editor.)
Psychologische Arbeiten. Leipzig.

Kraepelin, Emil:
(1) Ueber die Beeinflussung einfacher psychischer Vorgänge durch einige Arzneimittel. Jena, 1892. Pp. 258.
(2) Ueber geistige Arbeit. Jena, 1894. Pp. 26.
(3) Zur Hygiene der Arbeit. Jena, 1896. Pp. 30.
(4) Zur Ueberbürdungsfrage. Jena, 1897. Pp. 41.

Kraepelin & Hoch:
Ueber die Wirkung der Theebestandtheile auf körperliche und geistige Arbeit. Psych. Studien, I, 1896.

Kratz:
Fatigue and Sense Defects. Proc. of N. E. A. for 1897, pp. 280-284.

Laser, Hugo:
Ueber geistige Ermüdung beim Schulunterricht. Zeitschr. f. Schulges. VII. 1894.

Lombard:
Effect of Fatigue on Voluntary Muscular Contractions. Amer. Jour. of Psych., Vol. III, pp. 22-42.

Lukens, Herman T.:
The School-Fatigue Question in Germany. Ed. Rev., Vol. XV, pp. 246-254.

Maggiora:
Ueber die Gesetze der Ermüdung. Untersuchung an Muskeln des Menschen. Archiv für Anatomie and Physiologie. Phys. Abteilung, 1890. Pp. 190-243.

Moore, John M.:
Studies in Fatigue. Studies from Yale Psych. Lab. III.

Mosso, A.:

(1) Ueber die Gesetze der Ermüdung. Archiv. f. Anatomie and Phys. Phys. Abteilung. 1890. Pp. 89-168.

(2)La Fatigue intellectuelle et physique. Paris, Felix Alcan. 1896. Pp. 191.

Oehn:

Experimentelle Studien zur Individual-psychologie. Psychol. Arbeiten, I, 92-152.

O'Shea, M. V.:

Ed. values in the elem. Schl. Pop. Sci. Monthly, Mar., 1896.

Partridge, G. E.:

Second Breath. Ped. Sem., April, 1897. Pp. 372-381.

Reprints and Summaries of Articles on Fatigue:

Reports of Com. of Education. 1894-5, pp. 449-460. 1895-6, pp. 1175-1198.

Richter, Gustav:

Unterricht und geistige Ermüdung. Lehrproben and Lehrgänge. Heft 45. 1895.

Rivers & Kraepelin:

Ueber Ermüdung und Erholung. Psych. Arbeiten I. P. 627.

Schaefer:

Arbeitskraft und Schule. 2. Auflage. Leipzig. Pp. 56.

Schiller, H.:

Der Stundenplan. Band I, Heft I. Sammlung von Abh. aus. d. Gebiete d. päd. Pysch. and Physiol. Berlin, 1897.

Schulze, Rudolf:

500,000 Rechenaufgaben. Eine experimentelle Untersuchung. Der Schulmann XLIV. P. 340.

Scripture, E.:

The New Psychology. London, 1897, pp. 228-247.

Accurate Tests for Child-Study. Tran. Ill. Soc. for Child-Study. I. No. 2.

Shaw, Edward R.:

Fatigue. Proc. N. E. A. 1898, pp. 550-554.

Sikorsky:

Sur les effets de la lassitude provoquée par les travaux chez les enfants de l'âge scolaire. Annales d'hygiene publique. III Série. Tome II. 1879. Pp. 458-464.

Spitzner, Alfred:

Mental Overpressure in Schools. Paedagogium. January, 1896, Leipsic.

St. Cloud Normal School, Minn.:

Study of Fatigue. Normalia, Mar., 1896.

Teljatnik, T.:
Zur Frage der psychischen Ermüdung bei Schülern. Vortrag. Referat in Neurolog. Centralblatt XV. 1896. 24. P. 1129.

Tissie:
La Fatigue chez les débiles nerveux ou fatigués. Revue scientifique. Nov. 21, 28, Dec. 12, 1896.

Tumpel, R.:
Ueber die Versuche geistige Ermüdung durch mechanische Messungen zu untersuchen. Ztschr. f. Phil. and Päd. 1898. V. 1 and 2.

Vannod:
La Fatigue intellectuelle et son influence sur la sensibilité cutanée. Pp. 61. Geneva, 1896.

Wagner, Ludwig:
Unterricht und Ermüdung. Berlin, 1898. Sammlung von Abhandlungen aus dem Gebiete der päd. Psych and Phys. Band I, Heft 4.

Warner, Francis:
A course of Lectures on the Growth and Means of Training the Mental Faculty. Cambridge, 1890. Pp. 74-86.

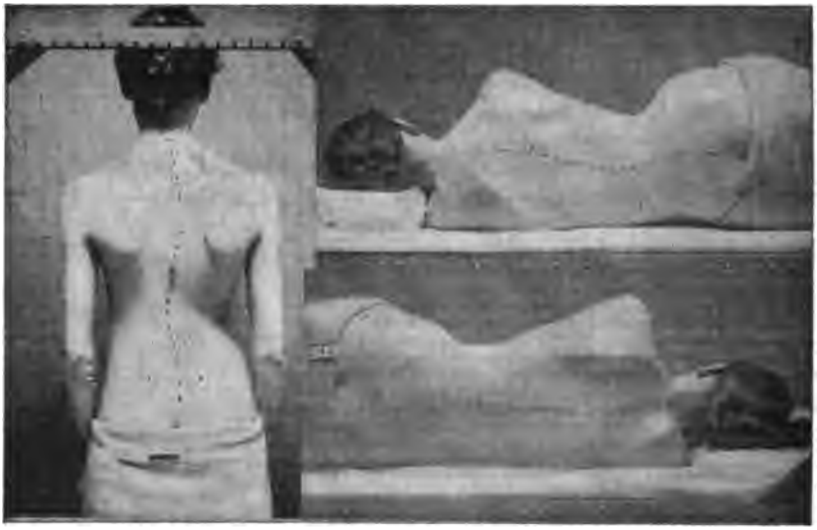
Zimmermann:
Zeitschrift f. Schulges. 1893. P. 321.

BED POSTURE AS AN ETIOLOGICAL FACTOR IN SPINAL CURVATURE.*†

G. W. FITZ

Cambridge, Mass.

The problem of the influence of bed posture in the production of spinal curvature has attracted my attention for a number of years, and I have taken photographs of cases in which a complete history of habit of sleep upon one side was obtained. These cases represent both side postures, and resemble one another so closely that the accompanying photographs may be considered typical. The first figure shows the curve as seen when the patient is standing; the second, when in the habitual sleeping posture; and the third, when in the reversed position.



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*Reprinted from the Transactions of the American Orthopedic Association, 1898.

†Based on studies made in the curvature clinic of the Boston Children's Hospital.

The curves are explained by the fact that the hips and shoulders are the broadest parts of the trunk and support the ends of the spine, leaving the middle portion suspended between them. The head, also, unless a pillow of sufficient thickness is used to keep it in line, tends to slope down toward the mattress and assists in their formation.

The period of sleep is one-half to one-third of the growing time of the child, and, consequently, the pressures and strains of an habitual sleeping posture have an opportunity to influence the growth of the vertebræ and ligaments and shape them in accordance with their relative positions in the curve.

The cases studied show marked rotation, and although we cannot attribute such rotation to the sleeping posture, yet it is doubtless true that any asymmetry of the vertebræ caused by unequal growth in the habitual sleeping posture will lead, in standing and sitting positions, to complex stresses upon the various bones and ligaments, and will result in increased curvature with rotation.

In the eight cases in which a complete history of habitual bed positions was obtained, the fundamental curves correspond to the curves produced in the normal individual with a flexible spine when lying upon the corresponding side, but modified by rotation. In no case with such a history have I found a curve not thoroughly consistent with this etiology.

Histories of bed postures are, however, difficult to get, since parents are usually ignorant of the sleeping positions of their children. I am convinced that if we could ascertain them for all curvature cases, a considerable number would be explained in this way. Furthermore, it is not improbable that habitual postures at school and at home are more or less determined by the shapes of the vertebræ and the length of the supporting ligaments, and are manifestations of attempts at easy attitudes necessitated by such faulty bones and ligaments.

SUMMARY.

1. Lateral bed postures curve the spine.
2. Habitual lateral bed postures, by favoring the growth of the spine on one side and retarding it on the other, tend to fix such a curve by establishing physical changes in the bones and ligaments.
3. The time in bed is so large a part of the growing period that the distortion may become pronounced.

4. Inequality in the vertebræ and the supporting ligaments brings about asymmetrical strains in standing and sitting postures, resulting in increased curvature with rotation.

5. Bed posture thus becomes an important factor not only in the etiology of curvature but in its treatment.

REPORT OF THE FIRST NATIONAL CONVENTION OF THE A. A. A. P. E., APRIL 4, 5 and 6, 1899.

THE Convention was opened Tuesday morning, April 4, at the Girls' Latin School, Boston, Mass., with a short address by the President of the Council,

DR. E. M. HARTWELL.

"As representing the Council, it devolves upon me to call the meeting to order and to conduct it until the Convention has been organized.

"This, as you know, is the first time that the Association has held a meeting since its reorganization in 1895, when, perhaps, we, in a measure, anticipated the present popular desire for expansion. It seemed best to promote the formation of as many associations and groups of persons who were sufficiently interested in physical education as possible to work for it throughout the year and in the intervals between the general gatherings of the Association. It devolved upon the members of the Association in New England to organize the Council as the body in charge of the general affairs of the Association during the interval between the conventions, but it is provided in accordance with democratic principles that once in a while the members of the Association through their representatives of the constituent societies shall come together for the purpose of determining what the needs of the cause are, what changes, if any, should be made, in the organization, and the work and policy of the Association at large.

"It has devolved on the Council in these last few months to make certain arrangements for this, our first Convention, to the end that the members may express their views upon the affairs of the Association. The members of the Council are permitted to sit in the Convention, but are precluded from voting on any of the questions coming before it.

"It is hardly necessary, at this point, to make any general report of the doings of the Council, or of the Societies. We can congratulate ourselves, if not on a steady, at least on a considerable, growth in the Association in different parts of the country. That growth has not been feverish or precocious, but more has been accomplished in the most pressing work of the Association, viz., the education and information of the membership of the Association, than has been accomplished in any like period in the past. If the experience of the different societies and of the members at large has been such as to suggest that the organic machinery of the Association and of the societies needs change and amendment, then it is the duty of this Convention to take such measures to profit by that experience.

"We have planned for a rather more business-like meeting than we have customarily had. Certain questions which are considered to have an important bearing on the welfare of the Association for the Advancement of Physical Education have been propounded for discussion by the Convention. It appears to be eminently desirable that the public should know the attitude of those whose work is to promote physical education in one or another of its branches. The questions referred to were laid before the societies sufficiently long ago to secure a certain amount of preliminary consideration and they will come before you for further discussion at the proper time. It is hoped that at the final business meeting of the Association on Thursday, the Convention will take definite action upon those questions, so that the Association will stand committed to a certain body of principles in accordance with which it may proceed in its further campaign of education."

Dr. Hartwell then informed the members of the Convention that they would be welcomed as visitors at the Posse Gymnasium, the Young Men's Christian Association, the Young Men's Christian Union, the Young Women's Christian Association, the Allen Gymnasium and the Boston Normal School of Gymnastics, in the afternoon; and gave notice of a meeting in the evening at the Brookline High School on the subject of Swimming Baths, to be followed by an exhibition of swimming in the Brookline Bath House, at nine o'clock, to both of which the members of the Association were invited.

Dr. Hartwell notified the members that tickets would be required for the Fay House reception, for admission to Radcliffe Gymnasium and for the Exhibition of Gymnastics at the Hemenway Gymnasium, on Thursday afternoon and evening.

ORGANIZATION OF THE CONVENTION.

The Convention then proceeded directly to the business of the meeting; Dr. C. E. Ehinger was elected Chairman of the Convention and Mr. J. Blake Hillyer, Secretary.

A Committee on Credentials was appointed, made up of the secretaries of the local societies, together with one member of the Council (Dr. G. W. Fitz) and one member at large (Dr. J. W. Seaver). After considering the credentials the Committee reported a society representation of a total of twenty-eight votes by the following delegates:

Boston (12), Mr. Hartvig Nissen, Dr. C. J. Enebuske, Baroness Rose Posse, Dr. E. O. Otis, Dr. R. W. Greenleaf, Miss Laura S. Plummer, Miss Harriet E. Hutchinson, Miss Jennie M. Colby, Miss Mary E. Allen, Miss Helen P. Howell, Miss Jennie B. Wilson and Dr. Mary Rees Mulliner; New York (9), Miss Jessie H. Bancroft, Dr. Walter Truslow, Miss Martha Garside, Miss M. D. Fisher, Dr. M. A. Requa, Mr. J. Blake Hillyer, Dr. W. L. Savage, Miss E. C. MacMartin, Mr. Jakob Bolin; Philadelphia (3), Dr. C. E. Ehinger, Dr. Grace E. Spiegle, Miss H. E. Trask; New Haven (2), Dr. E. H. Arnold, Miss Annie R. Hughes; Michigan (2), Miss Alice G. Snyder.

The following societies failed to send delegates: Chicago, Detroit, Cincinnati, Providence, Nebraska, Hudson River Branch,* Syracuse,* Western Massachusetts* and Cleveland.

A letter from the North American Gymnastic Union, deputing Dr. E. H. Arnold as its representative at the Convention, was read and accepted, the Secretary being directed to extend the thanks of the Convention to the Union for its courtesy in sending a delegate.

Voted, That the President and Secretary of the Convention act as the Executive Committee.

Voted, That the President appoint a Committee on Resolutions. Dr. Luther Gulick, Mr. Christian Eberhard and Mr. Hartvig Nissen were appointed.

Voted, That a Constitutional Committee be appointed, to which all constitutional questions might be referred for consideration and report, previous to a final vote by the delegates. Drs. J. W. Seaver, D. A. Sargent and G. W. Fitz were appointed.

REPORT OF THE CHAIRMAN OF THE PUBLICATION COMMITTEE.

Dr. G. W. Fitz.—"Mr. President and Members of the Convention: It is my privilege to report the work done by your Publication Committee since its appointment in 1896. Its first duty, as you know, was to issue the Tenth Annual Report of the A. A. P. E. Since the appearance of that report in 1896, its attention has been primarily devoted to the publication of the REVIEW, the first volume of which consisted of two numbers published simultaneously in 1896. In 1897, four numbers of the REVIEW appeared in March, June, September and December. In 1898 four numbers were again published, and the March number for 1899 has just appeared.

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*These societies reported later.

"The results of the work of the Publication Committee have been so constantly before you that a detailed report of them seems unnecessary. Its aim has been to submit to you, in so far as the funds at its disposal permitted, original papers and summaries as well as important news items. The growth of the REVIEW has been very encouraging to your Committee. It numbers among its contributors many of the best known Physical Educators, and the sixty-four pages promised for each number at its inception, have been steadily increased. It receives in exchange magazines from almost every part of the world, and it is a favorite medium for notices of new publications. In short, it has taken its place as a standard American publication foremost among those devoted to physical education. It is the earnest hope of your Committee that, at this meeting, steps may be taken to place at its disposal funds sufficient not only to insure its permanent establishment, but also to make possible its continuous growth in value."

Dr. Truslow : "I move that in accepting the report of the Committee on Publication, we add to it the most hearty thanks of the Association for the most efficient, thorough and comprehensive work which it has performed. We feel that the AMERICAN PHYSICAL EDUCATION REVIEW has been to us a very thorough exposition of much of the work done by physical education in the country. Therefore, I move that the report of the Committee on Publication be accepted, with the most hearty thanks of the Association for efficient and comprehensive work."

Motion carried.

THE REPORT OF THE COMMITTEE ON FINANCE.

Mr. Christian Eberhard: "The financial standing of the Society, as published in the present number of the AMERICAN PHYSICAL EDUCATION REVIEW up to December 31, 1898, is as follows: The funds on hand January 1st, 1899, were $180.30. They have increased since then and we have now something like $300 on hand. The funds have been fairly satisfactory; they have increased from year to year. The Council took over from its predecessors about $250. At that time it was left upon the hands of the Council to publish the report of the last Convention, which volume used up that sum; so in spite of publishing the REVIEW, the Council have not only kept it up, but they have rather increased the balance. Some of the members of the Council had guaranteed the expense of the REVIEW should the regular receipts be insufficient, but we were never in need of calling upon that guarantee. The regular receipts have been quite sufficient to cover all the expenses. Of course the expenses have been kept as low as possible. I think the Association can congratulate itself upon its good financial standing at this time."

As the final report of the Committee on Finance was to be made on Thursday, no action was taken on the above report.

The report of the Committee on Theory and Statistics was omitted, owing to the unavoidable absence of the Chairman, Dr. E. M. Hartwell.

The report of the Technical Committee was given by the Chairman, Dr. D. A. Sargent.

THE REPORT OF THE TECHNICAL COMMITTEE.

Dr. D. A. Sargent.—"Mr. President and Members of the Convention: The only official business that has been brought to the attention of the Technical Committee has been the question of Terminology. This came to the Committee of the National Council through the recommendation of the Society of Gymnasium Directors, a branch of this organization. They have long felt the want of a uniform terminology in their special line of work. as most of us who have engaged in physical training of any kind must also have felt. The Christian Associations covering a broader area perhaps than the colleges, have also felt this want and have taken active steps to secure for their benefit a terminology which is now incorporated in a book which serves the purpose admirably.

"It is unnecessary to explain to this Convention the importance of a terminology. As you know the number of the terms used in the different sciences has become so great that it is necessary to have separate dictionaries for them. In physical training literature a great many of the publications are of no value to the teacher, simply because it is impossible to know what is meant by the use of certain terms.

"Some years ago we took up the question of a uniform method in physical measurements. For instance, if one person was making measurements of a certain part of the body and the other, in attempting to measure the same part was following out different landmarks, the results would be different and not comparable. So one of the first things necessary and one of the first things the Society did was to appoint a committee to draw up recommendations for a uniform method of measurements, and that has been in use for the last twelve or fifteen years.

"I regret to say that a good deal of this work has had to be done by the Secretary of the Technical Committee, and this report is furnished by her. I will read this report, but before doing so I will state first, perhaps, how it was brought about.

"The committee, which consists of Mr. Eberhard, Miss Narey and myself, felt that in order to have our work effective, it should be as broadly representative as possible, so we sent out invitations to all those persons about Boston who were prominently interested in the work, and invited them to meet and coöperate with the Committee in drawing up a terminology. For this purpose we used Dr. Anderson's handbook as a working medium, as the figures there served a good purpose, and we were thankful to Dr. Anderson for giving us the free use of many copies."

After reading a brief account of the meetings of the Technical Committee (February 15th, 1898, to March 25th, 1899), Dr. Sargent continued:

"As a result of these meetings quite a number of positions were settled upon as the recommendation of the Committee. Dr. Enebuske objected to a good many of these positions and will prepare a minority report. These positions will be illustrated by some member of the Association in costume next Thursday morning, then the disposition of the whole matter will be left in the hands of the Convention.

"I may say that I hope the work of the Committee, which has been rather persistent for the last six weeks, will take shape and will lead to the adoption of a uniform terminology throughout the country in which the American members of the North American Turner Bund and the Christian Associations and all other affiliated organizations will coöperate."

No action was taken upon the Report on Terminology since the matter was to come up for consideration later.

REPORTS OF LOCAL SOCIETIES.

NEW YORK PHYSICAL EDUCATION SOCIETY.

Mr. Hillyer, speaking for the New York Physical Education Society, stated that in the March (1899) REVIEW, the condition, needs and prospects of that society were considered, and asked that that matter be permitted to constitute the society's report.

MICHIGAN DISTRICT.

Miss A. G. Snyder: "As the delegate from the Michigan branch of the A. A. A. P. E., I want to bring to your notice one scientific paper which was brought before our society at its last meeting. It was a very interesting paper presented by Dr. Eliza M. Mosher, Supervisor of Physical Education, and Women's Dean at the University of Michigan. The paper brought forth the idea of taking the lateral and anteroposterior outlines of the body by photographing a shadow thrown upon a screen. The patient was placed behind a three-sided screen, thus being protected from view, and from the rear an electric or calcium light was thrown upon her. A clear shadow of the outline of the body extending to the hips was in this way thrown upon the screen, which outline was then photographed. The results were very good."

THE PHILADELPHIA PHYSICAL EDUCATION SOCIETY.

Dr. C. E. Ehinger: We have an active organization meeting regularly to listen to interesting papers. We have nothing especially worth calling attention to, but we are working along and I think we may say we have every reason for encouragement. Our meetings have been better attended than the earlier ones. We have some good papers, and I hope some of them may appear in print, so that you can see what the Philadelphia Society is now doing.

CONDITION OF PHYSICAL EDUCATION.

Mr. Hillyer: "The New York Society is very much interested in the fact that we have no normal school of gymnastics, so-called; we are interested in knowing how it is that Boston has so many. We should be glad to receive instruction as to how to arouse an interest in, or how to start, a normal school."

Dr. Truslow: "I wish Dr. Savage were here. He could instruct our usually well-informed Secretary of the matter. Dr. Savage has informally started a normal school of gymnastics and I think he would be glad to say something if he were here."

Member: "I would like to know why it is necessary for a normal school to be established in New York especially?"

Miss Bancroft: "There is a continued demand for a normal school in New York City. Every person engaged in physical education work in New York City is receiving a constant demand from pupils as to where they can get instruction."

Member: "That is true in all sections of the country, but are they here in Boston so well fortified with pupils that others are necessary?"

Dr. Arnold: "We have a normal school in New Haven, and if anyone were to ask for information as to starting such a school, I would say one thing: if you want to keep out of trouble, don't start one. I have been connected with one normal school, and I tell you there are more than enough of them. I think the history of medical education in this country is a good pointer as to what we must not do. We must improve what we have before we start out making new plans."

Dr. Sargent: "I would like to say one word in regard to the question of normal schools. From intimations I have received during the past week, I judge there is to be one started in St. Louis. I had a letter from a gentleman who is much interested in this branch of physical education. He has sent out circulars, and if he gets a sufficient number of replies to the circulars in response to the establishment of the normal school, he is coming on to take a Harvard Summer School course in order to qualify himself as a teacher. If this is an example of the way in which the normal schools are being started, I think it is well for us to stop and consider where we are at."

Member: "The implication seems to have been that the normal schools now established are essentially local institutions. I take it that none of them would feel proud to be considered as merely local institutions. They are ready to do work that is general and to receive students from all parts of the country."

Meeting adjourned.

Gymnasiums.

The afternoon of April 4th was devoted to exhibitions of work in the various gymnasiums of the city, among others the Y. M.

C. A., the Y. M. C. U., the Y. W. C. A., the Allen Gymnasium, the Posse Gymnasium and the NormalSchool of Gymnastics. At several of these gymnasiums classes were drilled for the benefit of the visiting members of the Convention.

Swimming Baths.

On Tuesday evening the Convention met at the Brookline High School, where Dr. Hartwell gave a paper, illustrated by lantern slides, upon swimming and public baths. After some preliminary remarks upon the nature and value of bathing as a means of public hygiene and of swimming as a recreative form of physical training, the speaker exhibited a series of lantern pictures, illustrative of the most typical forms of public bathing establishments. The series embraced architectural plans of restorations designed to show the close connection which existed in ancient times between gymnasia and swimming baths. The different forms of modern bath-house in Europe were described and illustrated. Attention was called to the fact that British bath-houses, as a rule, contained swimming pools and a series of tub baths so arranged as to secure privacy to the bathers, and that in Great Britain it was more usual than elsewhere to connect public wash-houses or laundries with the public baths. Attention was also called to the fact that the British public bath-house was usually erected and maintained out of public funds, though in Great Britain, as generally throughout Europe, those who resort to the public baths for the most part were required to pay a small fee. It was stated that public bath-houses of the combined swimming and cleanliness bath type have become quite common, especially in Germany, within the last twenty-five years.

A comparatively new form of public bath, namely, the "people's bath-house," has been developed on the continent during the last fifteen years. In baths of this type, swimming and plunge pools are seldom found. Such establishments are less costly and pretentious than the monumental type of bath-house and are usually furnished with shower-bath cabins, or with shower baths and tub baths. In some cities, as in Vienna, for instance, the people's baths contain shower baths only, so fitted as to furnish a bath of any desired temperature at all seasons of the year. Instances were cited to show that the same city frequently provides swimming baths, people's baths of the distinctively cleanliness bath type, and shower baths in the schoolhouses for the benefit of school children.

Illustrations were shown and descriptions given of some of the most notable public baths erected in this country during the last five years, special attention being called to the Brookline Public Bath, which contains both swimming and cleanliness baths, and to the Dover Street Bath-House in Boston, which is distinctively of the cleanliness bath type.

Dr. Hartwell expressed the opinion that the most pressing need in our crowded cities at present is for cleanliness baths as a means of inducing the people to form the habit of bathing, and urged the policy of multiplying people's bath-houses in the interests of public hygiene. Swimming baths afford valuable means of recreation and exercise, but the cost of their construction and maintenance is out of proportion to their value for hygienic purposes.

SWIMMING EXHIBITION.

Following the paper an exhibition of swimming was given at the Brookline Bath-House* by members of the Brookline Swimming Club, the Brookline High School, the Boston Athletic Club and several expert swimmers. Mr. I. R. Thomas, of Brookline, who holds the American record for under-water swimming, swam a distance of 160 feet. Interesting performances were given by Mr. Leavitt and Mr. McNally. A relay race between the Brookline Swimming Club and the Boston Athletic Club excited much interest, and was won by the team of the Brookline Swimming Club. These were followed by diving and tub racing. A water polo match between the Boston Athletic Association and the Brookline Swimming Club, which was won by the B. A. A., completed the programme.

WEDNESDAY, APRIL 5, MORNING SESSION.

After the reading and acceptance of the minutes of the previous meeting, the Committee on Credentials reported Dr. Paul C. Phillips as the delegate from the Springfield Society and Miss Ada F. Thayer from the Syracuse Society.

Continuation of discussion on the condition, needs and prospects of the constituent societies; the present condition of physical training in schools, *e. g.*, public, secondary, normal, colleges, Y. M. C. A., clubs and societies.

Miss Bancroft: "It seems to me of the utmost importance that we should consider practical means of furthering our work in educational institutions. Many of the resolutions presented by the National Council to this Convention indicate a need for extending our work, but our efforts to that end are too vague and indefinite; we do not accomplish anything. One reason for this is that we keep too much by ourselves; we should coöperate with other educators. The solution of the problems involved calls for consideration from many points of view, not merely from the physical trainer's. We are continually calling for more time in the educational curriculum. When it comes to granting us that time, the superintendents, presidents, and those having the administrative control of the schools and institutions, have to consider what that time is to be deducted from. In deciding how much time should be given to physical education the educator, in the broadest sense, will not consider the subject as gymnastic training merely; he will include many phases of the subject, including manual training. We ourselves are not certain as to how much time should be given to plays, games and gymnastics in the various school grades. There are many problems to be considered that perhaps could be decided in approximately definite form if actual working committees could be formed for that purpose. To this end I would suggest the formation of a committee on the lines of the famous Committee of Ten in the National Educational Association, or of the Committee of Fifteen of the same body.

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*For description of Bath-House, see American Physical Education Review, Volume I., p. 88.

"The plan of the Committee of Ten, or of Fifteen, is one that has demonstrated its practicability by the usefulness of its work. The National Educational Association authorized the appointment of these committees. The Committee of Ten was to consider work in the secondary schools of our country. (By secondary schools, I mean high schools and preparatory institutions.) The President of Harvard University was the Chairman of that Committee. They appointed sub-committees of ten to consider each subject to be taken up; one committee had the subject of English; another the subject of foreign language; another mathematics, etc. These sub-committees associated with themselves educators from all over the country. There were many differences of opinion among them as to the amount of time to be given to the various subjects, the ground to be covered, etc.; but they did compromise upon definite recommendations. These reports of the sub-committees were referred back to the original Committee of Ten; and Dr. William T. Harris, in submitting the final report of that Committee to the Minister of the Interior, said he regarded it as the most important educational document ever issued in the United States. It has since had great influence upon the courses of study in secondary schools.

"The Committee of Fifteen did a similar work for the elementary schools and one that has had even a wider influence. Superintendents, in seeking to make changes in the curriculum of their schools, refer to that report as a standard for comparison. I may say here that the object of these committees was to determine, not what was an ideal, but what was a practical, working solution of the questions presented—something that could be done under existing conditions.

"Now, it seems to me, that we might form a committee on those lines,—a Committee of Fifteen, which should consist of two directors of physical training actually engaged in the work of each of the three grades of schools, elementary, secondary and higher. By elementary, I mean the primary and grammar schools; by secondary, the high and preparatory schools, and by the higher, the colleges and universities. This committee should contain, besides one superintendent or administrative officer from each of the grades of schools mentioned, three psychologists who have given special study to general physical and manual training, and three practising physicians who have made a specialty of children and youth. If this Committee of Fifteen should determine that the subject is not ripe for definite recommendations, that would be their final report. If they should find, however, that definite recommendations can be made, or that there is a prospect of coming to such definite work, they could appoint subcommittees, one for the elementary schools, one for the secondary and one for colleges and universities. Those committees could associate with them other than the original fifteen, enlarging as much as they pleased. They should call conferences to discuss these subjects and make definite reports for the work in their division to this original Committee of Fifteen. The final report of that Committee of Fifteen should be so authoritative, both because of the merits of its conclusions and the personnel of its members, that it would attract the attention of educators. It might well be presented as a memorial for consideration to the Department of Superintendents of the National Educational Association, or it might be considered worthy of issue by the United States Commissioner of Education as a special document from the Bureau of Education at Washington. It has been suggested that it might be issued by this organization, but I think this is precisely what we are trying not to do; we are trying to coöperate with others, not to continue the policy by ourselves.

"The choice of that permanent Committee of Fifteen is going to be a very hard and long task, so I think there should be a preliminary Committee of Five to name the permanent Committee of Fifteen. The members of the Committee of Fifteen should not necessarily be members of the A. A. A. P. E. If we wish to have these other people associated with us, we do not wish to ask them to give their time and a dollar besides. I therefore offer for consideration this resolution:

Resolved, That the incoming President of this Association shall appoint four members to serve, with himself as Chairman, as a Committee of Five, which shall appoint a permanent Committee of Fifteen, to draft definite recommendations for securing fuller recognition of physical training in elementary, secondary and higher educational institutions. This Committee of Fifteen shall consist of two directors of physical training actually engaged in the work of each of the grades of schools mentioned, one superintendent or administrative officer from each of the grades of schools mentioned, three psychologists who have given special study to general physical and manual training, and three practising physicians who have made a specialty of children and youth.

" 'The members of the Committee of Fifteen need not necessarily be members of the A. A A. P. E.

" 'This Committee of Fifteen shall be empowered to appoint sub-committees, to call conferences as they may see fit and to raise funds for the prosecution of their work, and, if necessary, to call upon the A. A. A. P. E. for funds, not to exceed $50.

" 'The final report of the Committee of Fifteen shall be issued in such manner as the original Committee may think is to the best interests of the object in view.' "

Dr. Requa: "I think it is known to most of us that the Committee to which Miss Bancroft referred, not only considered mathematics and other school studies, but also our special subject of physical education; they decided the character of the work and divided it into two branches, one of systematic work and one of games and plays. They also decided the amount of time. That was decided by the Committee of Fifteen. I heartily approve of what Miss Bancroft has said, and think we should read over carefully what the Committee of Fifteen and the Committee of Ten have done and give our sanction or disapproval of what has already been acted upon in regard to our subject."

Mr. Nissen: "It seems to me that it is very evident we should do something. It was only last night that one of the school committee members asked me: You have meetings today, what are they good for? Now when school committee men have the idea that what is done in such assemblages as this, is good for nothing, we must begin to show that we are trying to do something so that we can get a real recognition. As it is now, we are not recognized by them, therefore I very heartily agree with Miss Bancroft's idea of getting a committee to lay down a plan of work and to promote the work which this Association should do."

Dr. Arnold: "May I ask if the report is to be submitted to this assembly first, or is it to stand as at first drafted without our having a chance to pass upon it?"

Miss Bancroft: "My idea was that a committee of so large a size should have the confidence of this Association as to its conclusions. It is very likely that it ought to be submitted to this Association and endorsed by it, but my personal opinion is that if it is submitted to this Association, that will be the end of it; there would be no definite policy possible among so large a number. If, as an association, we can decide upon certain people, in whom we have confidence, from our own ranks and outside of our own ranks, to do this work, I think we should have confidence in their judgment as to what should be done with the report. If that report comes up for discussion in this Association we could have at the next Convention a meeting three months long and never reach the end of it. * * * The president does not, according to this resolution, appoint that committee. The president associates with himself four other members to appoint the committee. Work of any sort must be coöperative if it is going to be good work. Every one of us must coöperate to the extent of putting some reliance in people who are so largely recognized as experts in their line of thought. When it comes to the selection of the physicians and of the psychologists, how many of the members of this Association are sufficiently acquainted with the personelle of the physicians and the psychologists to have any opinion about it? My idea is that by taking the counsel of special people on this subject (and they can confer with as many others as they wish and will be doubtless glad to receive suggestions from any members of this Association), we shall arrive at some end; but unless every member of the Association is willing to put confidence in a committee (not confidence in any one person) we shall never do anything more than we are doing now."

Dr. Fitz: "I sympathize heartily with Miss Bancroft's plan and I think her closing remarks exceedingly pertinent. If we start an investigation by a large committee representing not only our Association, but all educational circles, the results achieved by them will have the full force of free and independent action un-biased by prejudice, unwarped by a desire to achieve specific ends. They will contribute to the education of the teachers who are quick to appreciate the value of such research. These results we shall be bound to consider but not necessarily to accept."

Moved and voted that the resolution be referred to the Committee on Resolutions.

Standing Committees.

Dr. Truslow: "The New York Society has found certain difficulties in the administration of their work owing to the present wordings of that Constitution and would like to present some resolutions of amendments or of substitution. One is Section 3 of Article V, regarding the outlining the duties of the Standing Committees. We have found in New York a great difficulty in determining just what are the exact duties of the committees; they seem to overlap each other in some ways and, after consideration, we would offer as a substitute for that section of that article the following:

"*Resolved*, That Section 3, Article V, of the General Constitution, be changed to read as follows:

"The First Standing Committee shall be known as the Committee on Theory and Statistics, shall report to the Society on new investigations, theories or results gained in the sciences fundamental to a rational physical education: physics, chemistry, anatomy, physiology, psychology, pedagogy, anthropometry, etc., which may be of value to the teachers in their specialty, also upon methods and procedures in other branches of instruction, especially those in which the motor element is prominent—sloyd, drawing, writing, modeling, singing, etc.—and shall consider and propose to the Association definite investigations along these lines.

"The Second Standing Committee shall be known as the Committee on Publication and Bibliography. It shall have charge of the editing and publishing the transactions of the Association, if such publication is deemed necessary; it shall consider and report on matters pertaining to the history and bibliography of physical education and take steps to secure a library which shall be under its control.

"The Third Standing Committee, which shall be known as the Committee on Practice, shall consider and report on all matters pertaining to the practical side of physical education, the extension of the work, the choice, arrangement and use of definite kinetic forms, methods of teaching, modifications and improvements in the construction of gymnasia, playgrounds, bath-houses, apparatus, school and house-furniture, etc."

Moved and voted that the amendments be submitted to the Committee on Constitution.

Fiscal Year.

Dr. Truslow: "The question of the date on which the fiscal year shall begin and end is another point considered by the New York Society. We would like to present the following amendment:

"Article X of the Constitution to read as follows:

" 'The fiscal year of this Association and of its constituent Sections, Districts and Societies shall begin on July 1st, and end on the June 30th following.'

"Mr. Bolin of our Society has worked the matter over carefully and I will read his remarks on the subject: 'The changes are proposed (1) because it seems highly desirable that a society with educational aims should conform to the actual educational work, not the calendar year; (2) our experience is that changes of situation of teachers at the beginning of the school year make it difficult for us to gain them as new members in October and December when their fees only pay for the rest of that calendar year, and that thereby also, many members moving away from our locality to places where no societies exist, really lose privileges for which they have paid; (3) we desire to coöperate with other educational bodies, for example the National Education Association, the working year of which corresponds to the school year; (4) we have found it desirable to make out our programme for the whole year working from the beginning, in order to give adequate time for preparation of papers, etc., and in order to publish our programme; (5) the Executive Committee being elected in December have great difficulty in providing a programme for the January meeting; (6) the Standing Committees established by the Executive Committee are hampered in their duties, for instance the committee in charge of exhibition have found difficulty in working. The exhibition comes in the spring when the work of the year is drawing to an end and the pupils are best able to give exhibitions, so if this committee has been appointed in January they have not had time to get in working order; (7) not only does a change occur in the middle of the year in membership, but among the members of the various committees.

"There seems to us to be only three objections to the change, viz.: (1) it seems a reversal of the decision of the Tenth Annual Meeting; (2) it would cause a temporary confusion in the payment of dues, but the fact that such confusion is temporary only is not strong enough reason against it if the Society want the change; and (3) much confusion may be caused in the publication of the Review, which is undoubtedly the strongest reason.

"I think this should be referred to the Committee on Constitution because they have looked into the matter very carefully, provided there are no remarks to be made upon the subject."

Dr. Fitz: "I should like to say a few words as Corresponding Secretary upon the practicability of this change. Some time ago, I received notice from the New York Society that they contemplated bringing this matter before you and I am glad that they have chosen this time, when it can be fully discussed.

"During the last four years, as Corresponding Secretary of the Association, I have found very great difficulty in obtaining addresses during the summer. Many persons change their addresses at this time, but fail to give notification of the change. To place the beginning of the fiscal year at this time would be, therefore, to introduce an element of uncertainty and disorder which would of necessity delay organization until late in the fall. At present it is possible during the time from September to January to make enquiries whereby the addresses of such persons are obtained, so that at the beginning of the new year their dues are collected without difficulty and the Reviews which have been returned because of wrong addresses are reforwarded to them. Thus we are enabled to begin the fiscal year under favorable conditions.

"The advantage from the standpoint of the working of committees does not seem to me sufficient to compensate for these disadvantages. The Standing Committees, according to the Constitution, consist of three members, only one of whom goes out each year. Thus continuity of action is assured since the one member who withdraws leaves the senior member as chairman, and the new member who comes in unites with the others to carry on the programme decided upon. It would seem that any confusion now experienced might be provided against by preparing the January programme in advance. The matter has been so managed in the Boston Society that they have had no complaint from the workings of the committees. The remedy, therefore, seems to me to be found in an advanced preparation of the year's plans, and not in a change in the beginning of the fiscal year, whereby a confusion already great would be increased a thousand fold."

Mr. Chr. Eberhard: "The previous speaker has not touched at all upon the financial aspect of that question, and perhaps it becomes me as Treasurer to say a few words along that line. It is very desirable, and if the REVIEW is to be continued as it has been, it is almost indispensable, that the dues shall be collected within the first few months of the fiscal year, so that the Association may know what it can do for that year. Now it is next to impossible to collect any money during the summer months; the teachers are on their vacations, they cannot be reached, and if they can, they can not well spare the money during the summer time, but the first of January comes in the middle of their working season, and experience has shown that the dues come in very rapidly during those months, while hardly any can be collected during the summer. That is another reason why the fiscal year should remain just as it is."

Mr. Hillyer: "As the prime mover of that original amendment and the one who had the greatest trouble in arranging the programme and in making out the Executive Committees, I would like to withdraw the resolution."

Dr. Truslow: "I would like to say that it is so difficult for us to get new members between October and December because they will not want to pay the dues for that time, that we often have to wait until after the first of December to get our full number of members. However, I can see from the standpoint of the committee, that it is a serious obstacle. I would be glad to withdraw the motion."

Associate Membership.

Dr. Fitz: "There is one point I should like simply to state for reference to the Constitutional Committee. I would move that the article in the Constitution, referring to membership in the Association, be changed. Section 1, Article III, now stands as follows: 'The membership of the Societies belonging to the Association shall consist of active, associate and honorary members.' This distinction between active and associate members has been the cause of much annoyance through the criticism of those students who becoming teachers were entitled to become active members but remained in the associate list through their failure to inform the Secretary of the change. In this way the whole matter became very much disorganized. The National Council, in the last published list of members, ignored this distinction in order to avoid doing injustice to those who had passed from associate to active membership. I should like to move, therefore, that the distinction between active and associate members be removed, and that the section read as follows: 'The membership of the Societies belonging to this Association shall consist of ordinary and honorary members.' "

Moved that the question be referred to the Committee on Constitution.

Voted.

Mr. Hillyer moved that a Committee of Three be appointed by the President to find out what society would entertain the Convention at its next meeting, three or four years hence, and where the national headquarters of the Council may be located.

Voted.

THE BEST MEANS OF CONTINUING AND IMPROVING THE AMERICAN PHYSICAL EDUCATION REVIEW.

Dr. Arnold: "In view of the fact that we do not know where the headquarters are going to be, I move that the discussion of the means best calculated to continue and improve the REVIEW be deferred to a later meeting."

Voted.

RESOLUTIONS.

Whereas, Though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable form of educational discipline, therefore be it

Resolved, That it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training *unless they have taken a medical degree*, to profess or be expected to serve either as experts in school hygiene or as practitioners in Mechanotherapy.

Resolved, That a medical degree in itself cannot be considered as a sufficient qualification for a position as director of physical training or teacher of gymnastics, and

Resolved, That a professional course of training is a necessary qualification for the teacher of gymnastics or director of physical training.

DISCUSSION.

Dr. H. L. Taylor.*—"Mr. President and Members of the Association: The preamble and resolutions printed in the official programme and offered this morning have my hearty approval; my brief remarks concern only the relation of physical training to school hygiene.

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* Read by Dr. G. W. Fitz in Dr. Taylor's absence.

"The importance of physical training in schools is as yet but dimly appreciated; even its advocates and exponents hardly realize its rightful claims to an equality with the regular branches of the curriculum, a position which I believe it is absolutely certain to attain, and which it must attain before it can yield its best fruit. As stated in our preamble, the ends of physical training are mainly educational and hygienic. It produces its hygienic effect through educational means; it educates the body towards health and competence. School hygiene, on the other hand, aims to place the school machinery and school work under conditions favorable to the best pedagogic results, both physical and mental.

"It may be frankly confessed that in practice school hygiene in a comprehensive sense can hardly be said to exist in this country. The planning and construction of the educational machine seem to be left to the architect, builder, manufacturer, publisher and teacher, with such occasional hints as may be dropped by those who have a personal interest in such matters, and can contrive to get a hearing. There is little, if any, trained supervision from the sanitary side of this complicated machine and its workings.

"It must also be admitted that very few in the medical or any other profession are competent to advise on many of the difficult and important questions that arise in this department. It is not merely a question of light, ventilation, plumbing and contagious diseases, but of sites and playgrounds, the size of type, the color of the printed page, the length of periods and of sessions, the distribution and duration of recesses and vacations, of home study and home care, of the order, coördination and adaptation of studies, of eye strain, brain strain and back strain, or attention and fatigue, of physical conditions as affecting mental competence, and the like; all questions which demand consideration from the hygienic side, in order to get the best pedagogic and economic results. It cannot be doubted, however, that given a demand for the higher sanitations, experts will qualify themselves for the work. At present it appears to be the business of no one in particular to look after these things from the hygienic standpoint. A bastard physiology, pedagogically unwise and scientifically unsound, is foisted by law upon teachers and pupils, many of whom are at the same moment breathing foul air, straining their eyes or otherwise violating the laws of right living without let or hindrance.

"So long as the present chaotic condition of sanitary affairs in schools continues, it is the duty not only of gymnastic teachers, but of all teachers, to point out, and assist in correcting errors and abuses, both hygienic and educational, and excellent work is being done in this direction, but this dependence on teachers for the supervision of school sanitation is anomalous and must be temporary. The present condition of things will not be permitted to continue indefinitely. Adequate provision will some time be made, whereby trained sanitarians will coöperate in adapting the educational machinery to physiological requirements, and in supervising its practical workings, and medical skill will be enlisted to safeguard the health of the children as well as to prevent them from infecting the community.

"The gymnastic teacher in my opinion is ordinarily no better qualified to take charge of the sanitation of a school, than of its instruction. Teachers of every branch should be grounded in scientific physiology and hygiene, and should apply their knowledge in their lives and in their classes, but they will do their best work in educating public opinion up to the point where it shall demand systematic expert supervision of school machinery and school work from the sanitary side."

The discussion of the resolution was continued by Dr. C. J. Enebuske of Boston.

Mr. Chairman, Members of the Convention :

The term Mechanotherapy is for the first time used in the official language of the A. A. A. P. E. in this resolution now under discussion. It is left to us who speak upon the subject to interpret the term. In the literature of the last ten years and more, as well as in the every-day language of teachers and physicians, there is considerable vagueness and diversity of opinion as regards the proper usage of the term.

In its widest interpretation Mechanotherapy is taken to signify the treatment of diseases by various mechanical appliances, such as supporting and protecting apparatuses made of metal, wood, leather, plaster of paris and various bandaging material, briefly that which is commonly understood as constituting orthopedics, with the exception of operations performed with cutting, sawing, scraping or crushing instruments.

With another interpretation, Mechanotherapy is understood to signify the treatment of diseases by movements and massage performed by means of mechanical apparatuses run by steam, or electric power, or the method called, after its inventor, the Zander-system.

If these two interpretations of the term Mechanotherapy were the only ones existing, it seems likely that serious confusion between the respective provinces of the teacher and the physician might easily be avoided.

But it is so, that not alone here in Boston but in various parts of the United States and also in the German literature, and in German books translated into English, the term Mechanotherapy is used to signify the treatment of diseases by means of massage and movements, passive, active, and resistive, and in some Swedish writings the term "mechanical agent in the treatment of diseases" is used with the same meaning.

From these sources I believe arises the confusion of the boundary lines between the Doctor's and the Teacher's province of duty; for massage and movements, active, passive and resistive, are necessary and indispensable means for the proper performance of the duties incumbent upon the respective professions of the Teacher and the Doctor. Massage and movements are working tools under therapy and under pedagogy alike, but for different purposes in the two professions: in therapy, for the purpose of the alleviation or cure of diseases; in pedagogy, for the development of powers already healthy, but capable of further development.

It is wrong, confusing and contrary to the best interests of the subject to discriminate between active movements as being educational, and resistive movements as being medical. Either may be educational or not, and medical or not, as the case may be. For instance, if John is a healthy boy, but his right arm is backward in development as compared with the left one, and the teacher of gymnastics administers massage to the arm and resists the contraction of the insufficiently developed muscles, with his hands or a substituting apparatus, such a procedure is not a therapeutic one, is not medical gymnastics, but falls properly within the province of gymnastic pedagogy. Suppose, on the other hand, John is a man in the upper middle age, with advanced chronic myocarditis, his heart not capable of driving the blood through the blood vessels back to the heart again with sufficient energy, the blood vessel walls, insufficiently nourished, unable to retain the fluid, but letting through the blood serum, filling more and more the tissues of the lower extremities, his kidneys refusing to work properly, his pleural cavities exhibiting signs of effusion and the bases of the lungs giving evidence of passive congestion, the man in intense air-hunger, gasping for breath and with agonizing pain about his precordia. If, now, the Doctor administers massage and motion, and under their influence the anasarcous fluid returns from the tissues through the lymph channels into the circulation again, the kidneys begin to work, the heart beats with more vigor, and the air-hunger and the precordial pain cease, and strength returns, and the man begins to walk over the floor of the ward and up stairs and down stairs and out in the garden, this is massage and motion as in the first case mentioned, but the difference is in the indications. The procedure in this case should not be called pedagogical, it is a therapeutic one; this is medical gymnastics; it falls wholly within the province of gymnastic therapy.

It is agreeable to the best interests of physical training that the teacher of gymnastics should claim the first of these two cases as his, but contrary to the same interest if he claim the last one.

It may perhaps be remarked that I have chosen extreme cases as illustrations of the difference between massage and motion in relation to pedagogy and therapy respectively. I will now replace the illustrations by definitions:

1. *Massage and motion as mechanotherapeutic agencies* signify the employment of certain manipulations and motions, passive, active, or resistive, with or without apparatus. upon definite anatomical and pathological indications, upon physiological principles and for therapeutic purposes, *i. e.*, for the cure or alleviation of disease.

2. *Massage and motion as pedagogical agencies* signify the employment of certain manipulations and motions, active, passive, or resistive, with or without apparatus, upon anatomical, physiological, and psychological indications, and for educational and hygienic purposes, *i. e.*, for the actualization of potential faculties and for the maintenance of health.

The latter is the province of the teacher of gymnastics or physical director as such, the former not.

The reasons why it is contrary to the best interests of physical education for the teacher of gymnastics and directors of physical training, unless they have taken a medical degree, to profess or be expected to serve as practitioners in Mechanotherapy, are obvious to those who are familiar with both gymnastic therapy and gymnastic pedagogy. For the benefit of those who have not given so much attention to the subject, it may be in order to indicate some of the reasons that have most impressed my mind.

Mechanotherapy as here defined includes remedial agencies, the correct and competent administration of which is of great public importance. The administration of these remedies in, for instance, heart diseases, nervous diseases, certain traumatic and other joint affections requires the same differentiating judgment and painstaking accuracy of performance as the administration of any other remedies known to medicine and surgery. Unless these remedies are administered by men of such qualifications as the medical degree is supposed to testify to, justice cannot be done to the patients, justice cannot be done to mechanotherapy, justice cannot be done to the art of healing, justice cannot be done to the progress of knowledge and skill as applied to the care and treatment of diseases. The public is deprived of its rights and humanity suffers an unnecessary loss. It is, therefore, evident which attitude the teacher, as such, should have to this question.

There is, however, another side to this same question of no less importance.

The profession of the teacher of gymnastics, as such, offers a wide field of work, of importance and magnitude, of manifold relations to other human endeavors, of far-reaching influences, of grandeur and beauty second to no other profession. Many problems of gymnastic pedagogy remain to be solved. New knowledge in this field develops slowly. I cannot recall that for the last twelve years I have learned anything new on physical education from any books on physical education. And yet the material that needs elaboration is here. Some reasons why so little progress in knowledge is made I am aware of. I believe that any teacher who wants to take up at the present time the unsolved problems of physical education for a more serious investigation will soon find himself painfully isolated, cut off from such inspirations and influences as are necessary for the maintenance of his mind's fertility in this work. All the inducements lead outward to the associated sciences and interests and will do so, until the teachers themselves become sufficiently conscious of their own mission in physical education to supply the necessary encouragement for progressive work in their own field.

I believe that the teachers of gymnastics outside of the medical profession lose valuable time by attempting to cure diseases. This time spent on the problems of physical education might render valuable service to the progress of gymnastic pedagogy and to the benefit of the public.

In discussing this subject, due importance should be given to the fact that as a matter of convenience the division of labor is frequently established between a physician and a teacher of gymnastics, that the former refers cases under his care and management to a teacher of gymnastics for the application of massage and movements. Although in this combination the teacher administers massage and motion to patients with a variety of diseases for therapeutic purposes, it should not be said that he serves as practitioner of mechanotherapy, this function being performed by the physician in charge in and by his interpretation of the indications of the case. The rôle of the teacher in this case is, I think, better expressed by the words "teacher of gymnastics" than any others that can be found. I believe also that it is worth while for a teacher of gymnastics to do a certain amount of this class of work for the sake of the increased experience and the additional insight into the adaptability of gymnastics to a greater variety of physical conditions. The knowledge derived from this experience can undoubtedly contribute to a more perfect interpretation of various problems belonging to gymnastic pedagogy proper. Moreover, the oneness and wholeness of gymnastics is served by teachers extending their study of gymnastics to its therapeutic relation and by doctors observing the extension of gymnastics into pedagogy. Such relations, however, should not lead to any confusion of the provinces of duty of the physician and the teacher.

I have deliberately avoided that part of the resolution which relates to the subject of School-hygiene. My reason is that I am aware that the discussion of that side of the resolution requires a different line of argument than that required in relation to Mechanotherapy, and I am confident that other speakers will treat that subject exhaustively.

As regards the second and third paragraphs of the resolution, I limit my remarks to saying that I am in accord with their bearing.

JESSIE H. BANCROFT, OF BROOKLYN.

In studying this resolution I have been frequently reminded of Lowell's remark about the politics of Dante's time; he said that "in order to a perfect misunderstanding of the subject you had only to read the histories." I have felt that in order to a perfect misunderstanding of this resolution, you had only to read it through. In the first place it deals with two distinct subjects—school hygiene and mechanotherapy. The diversity in the discussions that have preceded mine is sufficient evidence of this. In the next place, the first and second paragraphs either contradict each other, or say something they do not mean, or invite one to vote for something that does not appear clearly on the surface. The first paragraph states distinctly that gymnastics are a branch of school hygiene; the second paragraph declares that no one should profess, or be expected to serve, as an expert in school hygiene who has not a medical degree. This is a plain statement that no one should be a director or teacher of gymnastics who has not a medical degree. This is too preposterous to be considered; I do not believe it was the intention of the framers of this resolution, and I do not propose to discuss it from that point of view. I merely wish to call your attention to the fact that to vote for this resolution as it now stands is to vote for that proposition.

Evidently the purpose of this resolution is either to protect a position to be known as expert in school hygiene, or to limit the work of the physical trainer, or both—probably both. A brief definition of terms may help to a clearer understanding of the subject.

What is meant by physical education? So far as I have been able to observe, the tendency has always been, and is increasingly, to broaden the subject so as to include much more than gymnastic exercise. No greater evidence of this is needed than the published Proceedings of the past conventions of this Association, or the variety of topics presented by its official organ, the PHYSICAL EDUCATION REVIEW. The physical trainer who knows nothing but gymnastics is behind the times, and not capable of the best work in their specialty.

What is meant by school hygiene? After consulting a number of published authorities on the subject, I have compiled the following list of items: Selection of building sites; construction of buildings with reference to lighting, heating, ventilation, plumbing, noise, draughts, closets, wardrobes, height and color of blackboards; cleanliness of building; arrangement of school programme with reference to succession of studies, periods of fatigue, study hours, recess periods, home study; feeble-minded and deficient children; the whole question of seating, including correct and correctly-adjusted furniture; the testing of the powers of sight and hearing and seating accordingly; size of type; color of page; gymnastics; plays and games; training and care of the vocal organs; symptoms of illness or medical inspection; a more extended and thorough individual physical examination; lunches; problems of growth and development, including adolescence.

Is a medical degree necessary for expert work in all of these branches? This is best answered, perhaps, by asking where courses in school hygiene, as such, are found. Are they found in the medical colleges? No; they are found in the schools of pedagogy. The best courses of this kind that I know of are given at Clark University, Worcester, Mass., and at the New York University School of Pedagogy. I therefore hold, 1st, that the physician as such is not only not qualified in gymnastics, but is not qualified in many other branches of school hygiene; that for many branches of the subject a medical degree is not necessary, and the work may well belong to a number of experts; and, 2nd, that directors of physical training and teachers of gymnastics can be experts on a number of these branches, and it is to the best interests of physical education that they should be.

Turning to the first of these points—that the physician as such is not qualified on many of these branches—consider the sanitary side of the subject. Is any physician, just graduated from his medical course, qualified to give an expert opinion as to the construction, heating, ventilation, plumbing, etc., of school buildings? I claim that he is not. How many are experts on the question of school furniture? How many on the psychological side of the subject? How many could give an expert opinion as to the kind and amount of mental work involved in the various studies in the curriculum? The resolution distinctly states that the physician as such is not an expert in gymnastics. So here, out of a list of thirty items, are twenty-two on which the physician, by virtue of his medical training, is not qualified. I hold further that for these branches of school hygiene a medical degree is not necessary and that the work may well belong to a number of experts.

Is a medical degree necessary for the sanitary side of the subject? If it were, it would be one of the entrance requirements for courses in sanitary science and engineering. It is not one of the entrance requirements for those courses. Would any one question that the late Colonel Waring was an expert in sanitary science? Colonel Waring had no medical degree. One of the highest authorities on school sanitation in this country is Superintendent Marble, formerly of Worcester, Mass., and now of Manhattan and the Bronx. His monograph on the subject was issued by the United States Bureau of Education and is continually quoted and referred to as authoritative. But Superintendent Marble has no medical degree. I therefore claim that a medical degree is not necessary for expert work on the sanitary side of the subject.

Is it necessary on the psychological and pedagogical side? Here again, if it were, it would be one of the entrance requirements for psychological courses in the universities and for laboratory work. It is not one of the entrance requirements for those courses or work. Could there be any doubt that such men as Dr. G. Stanley Hall, or Dr. William H. Burnham of Clark University, or Dr. Edward R. Shaw, Dean of the New York University School of Pedagogy, were experts in this line? Yet none of these men have medical degrees. Furthermore, the very worst and most unhygienic mental strain I have ever seen put upon school children in gymnastic work, was done by physicians—men who, presumably, would not think of subjecting any other sensitive and fatigued organ of the body to a strain analogous to that to which they subjected the fatigued mind and brain. Some of us who have had special pedagogical training are inclined to think that such training is fully as important for this work as a medical course.

Is a medical degree necessary for an expert in school furniture? It was as an expert that Dr. Shaw was invited to deliver an address before the national convention of this Association in 1895 upon "Vertical Script and Proper Desks as Related to Education." Dr. Shaw's invention of an arrangement for controlling plus and minus distance of the desk top is a most important contribution to this subject. I know of another man in New York who has invented something of the greatest value in this line—at least to us in that vicinity. Many of our schools are constructed with sliding doors for partitions between the rooms; these can be rolled so that all the rooms on a floor are thrown together for assembly. Of course all the seats have to be placed so as to face the front for general exercises. This means that the seats on one side of the building are always placed so that the right hand is toward the light. The man of whom I speak has invented a seat that can be turned around—to face the front for assembly exercises and to the rear, with the left hand to the light, for the rest of the day. I cannot imagine anything of greater hygienic value in school furniture; but that man has no medical degree. I do not wish to appear as minimizing the problems involved in school seating; but the fact remains that some of the best known experts on the subject, and the inventors of some most valuable features, are not physicians.

There are other branches of school hygiene in which no one would contest for a moment the doctor's preëminent right. All of the items that could be included under the head of medical inspection belong, without question, to him—symptoms of illness, thorough physical examination of heart, lungs, etc. I would not for a moment be considered as inveighing against the medical profession; I regard it as the noblest profession on earth; but I do not regard it as an exclusive cult, admitted to secrets that are beyond the study and comprehension of the rest of mankind. The schools need the doctors; they would be better today if the doctors had given more attention to them in the past; they will be better in the future for the attention that the doctors are giving to them today; the schools need their skill, their knowledge, their counsel, their influence; but they need all of this in the spirit of generous coöperation that we have always been accustomed to expect from the medical profession, and not in a spirit of exclusiveness.

My contention is, therefore, that while the subject of school hygiene may theoretically be covered, with proper training, by one person, it naturally falls into several divisions which might well be handled by experts in these several lines. Part of it might very properly belong to a sanitary inspector; part of it to a medical inspector; Professor Josiah Royce, of Harvard, has recently made a strong plea for the establishment of an officer to be known as a consulting psychologist. Among the items which he names for investigation and advice by this officer are the mental effects of physical exercise, the psychological relation of manual training to other parts of the school work, and the psychological relations of various methods of school discipline. In urging the necessity for this office, Professor Royce says: "Neither through occasional invasions of the schoolroom by the overworked college teacher of psychology, nor by the equally sporadic visits of medical inspectors, will such facts come to get the sort of examination that they need." So here are the psychologists putting in a claim for part of the field.

Is there any reason why the directors of physical training should not have part of this? It appears to me that there are very strong, practical reasons why they should have at least three branches besides the gymnastics. The whole question of seating, including furniture, the powers of sight and hearing, and the use of the recess period, would seem to belong naturally to them. Take up these points a little more in detail.

First, the school furniture. Physical trainers are intimately concerned with this subject, for they are called upon to correct the results of improper seating as shown, among other things, in contracted chest, round shoulders and distorted carriage of head and spine. Must they work for ever with these symptoms and never turn upon the causes? Are they competent to deal with the results of conditions and not with the conditions themselves? If we know enough of human anatomy and mechanics to apply them to gymnastic exercises on a piece of apparatus, it seems to me that we know enough to apply them to sitting still on a chair. When it comes to measuring the children for the adjustment of the furniture, and the inspection of the seating to see that it is correct, who could be better for this than one trained to anthropometrical work and to the judging of posture? The work to be done depends very much upon one's definition of an expert. If it means to invent something that shall solve the problems over which the orthopædic surgeons of Europe have been working many years—and even here the doctors disagree—I do not think any of us would care to undertake the contract. I understand that a committee, here in Boston, is at work upon this matter of evolving suitable school furniture. I sincerely hope they are going to help us out of our difficulties; but, though they were to invent an ideally perfect desk, can you tell me of any better or more direct way of getting it introduced into the schoolrooms of this country than through the help of the physical trainers?

Is there any reason why the physical trainers should not superintend the testing of vision? What could a physician do that the physical trainer could not? The uninitiated seem to think that the testing for normal vision is something equivalent to a surgical operation; but anyone familiar with the use of Snellen's test type knows how absurd that is. If there were connected with the schools an expert on school hygiene in all of its branches, could he do the testing himself? Not at all. It would be absolutely out of the question for one person to test all of the pupils in any system large enough to employ such an officer. He would have to resort to the method now in general use and rely upon the teachers to do the actual work, after receiving instructions from him. This is the method used in the Minneapolis schools by Dr. Allport, ophthalmologist in the Minnesota State University. By this method, in the Brooklyn schools 50,000 children have been examined under the direction of the physical training department. I am now investigating to see if it is at all feasible to get a law enacted by the state legislature, or the city or school authorities, requiring children to present a certificate as to the condition of their eyes when they enter school, just as they now present a certificate of vaccination. This, I am doing, not because the present method is not satisfactory in results, but because, if there is any possible way of saving the teacher from that additional work, it should be done. The hygiene of the teacher must be considered as well as the hygiene of the pupils. The New York State Board of Health has recommended to the schools of the state the testing of vision as described, and have issued printed instructions for the work. I see no reason why the physical trainers should not be able to conduct work recommended to the teachers at large by the State Board of Health. It is questionable if a physician without special training is any better fitted for this work than anyone else. I know of a special school having a visiting physician in charge, where fifty per cent of the pupils were found by physical trainers to be deficient in vision. Naturally, this was a reflection upon the physician's work, and he tried to get out of it by saying it was not so. He even impugned the reliability of Snellen's test type and said it was an abnormal test for acute vision, used only by the army and navy; whereas, we all know, that Professor Cohn, of Breslau, has about decided that it is too lenient a test. In one of the Brooklyn schools word was sent home to the parents of one little boy that his eyes were in a very aggravated state, requiring attention from a specialist. The father came to the school to thank the authorities for calling his attention to the matter. He said he was a physician, and he owned up like a man. He confessed to being ashamed that his child's eyes should be in such a condition and he not know it; but it was a fact. I therefore question if the physician is any better fitted for this without special training than the physical educator. Moreover, it is not the physician's province in a school to diagnose. It is never for him to say what is the matter with the child's eyes. In many cases that would require lengthy treatment and many reexaminations. All that he can do is to pronounce the case normal or abnormal, and if abnormal, advise attention from the family specialist.

The work of the physical trainer in the recess period would seem to need no defense. Plays and games are conceded by all to be a part of their work.

How much of these various branches of school hygiene the physical trainer could undertake would depend very largely upon the number of assistants and the size of the field to be covered. The fact that the physical trainers are already in the field and making regular visits to the classrooms, is a strong, practical argument in favor of their taking part of the work. An inspector of hygiene would need a large force if he were to attend to all of the work in a system of any considerable size. In support of my contention that the physical trainer should take part of the work, I would quote from a man, the breadth and far-seeing wisdom of whose opinions grows daily more apparent—the late Baron Posse. In an address upon the "Hygienic Supervision of School Children," delivered before the New Jersey Sanitary Association in 1895, Baron Posse said: "Every school board should have its committee on hygiene, active and all powerful, to look upon the conditions enumerated above. And there might also be a "Director of Hygiene," unless there is a director of physical training, when he might also supervise the hygiene. Every teacher of gymnastics should be competent to direct the hygiene as well; if not, his professional education is not complete. Besides all this, there should be a school physician, who at regular intervals visits the school and examines the heart, lungs and nervous system of each child. Whenever necessary he should prescribe for the child as regards diet, study, exercise and recreation."

The advisability of the physical trainer's taking part of this work becomes apparent when one considers how school hygiene is put into operation. It is all very well to theorize about this sort of thing from the outside, but it is an entirely different thing to work at it from the inside. In Brooklyn the question of school furniture involves the Superintendent of Public Instruction, the Superintendent of Buildings, the Committee on Buildings and a state law, which requires that all school furniture shall be purchased of the States' Prison authorities. In every school board there is a committee specially authorized to select and purchase sites for new buildings; they do this after consultation with the superintendent, as to what locality most needs the relief of a new school. There is a committee on buildings and construction, and a school architect, employed permanently, or for the time being,—and there are specialists in school architecture, just as there are specialists in the architecture of business buildings, or residences, or hospitals. The by-laws of many school boards specify certain requirements in schoolhouse construction, as to the amount of air space and floor space for each pupil, the frequency with which the air of the rooms is to be renewed, etc. This is so in London and in Brooklyn; I think it is so in Manhattan and the Bronx. The correct working of the heating and ventilating apparatus rests with the janitor. In every school board there is a committee on studies, which decides, in conjunction with the superintendent, what studies shall be included in the curriculum. The arrangement of the daily programme rests with the principals and teachers, generally subject to the approval of the superintendent. The personal hygiene of the pupils,—attention to wet feet and clothing, symptoms of illness, etc.,—rests with the class teacher. Even where there is a medical inspector this is so. Does the medical inspector look over every morning all of the pupils in a school building to decide which shall be sent home? No; he looks over a little group sent to the office by the class teachers; it is their judgment in the last analysis, and for symptoms of illness that develop through the day, when the medical inspector is not there, the class teacher and the principal are alone responsible.

It will thus be seen that every one connected with the school system, from the President of the Board of Education and the Superintendent, to the janitors in the cellars, are concerned, necessarily and officially, with these matters of school hygiene. The wisdom of employing a consulting and supervising expert, I am not here to discuss. That is a very large and very grave question in school administration. The tendency to concentrate responsibility in the schools throughout the country, and the same tendency in business and municipal matters, is of the utmost importance and significance. What is everybody's business is nobody's business. But we must deal with existing conditions. Does any school system in this country employ an officer known as an expert in school hygiene? So far as I have been able to find out, they do not. In Europe there are such people connected with the school systems; but, so far as I can learn, they are members of the boards of education, or boards of regents—not employed by those bodies. This resolution would imply that the school boards of this country were casting about for experts in school hygiene. Is that the case? A little local history may help to elucidate the matter.

In 1896 the Boston Branch of the Association of Collegiate Alumnæ began, with the cordial approval of the superintendent and other school authorities, an investigation into the hygienic conditions of the Boston public schools. They employed an expert to assist in their investigations; they found him at the Massachusetts Institute of Technology; he did not have a medical degree. They found the conditions in many of the schools most deplorable. Some of the floors had not been scrubbed in fifty years. The sanitaries, ventilation, fire escapes, etc., were found to be in most reprehensible condition. When Mayor Quincy was inaugurated, he announced, not knowing of this work that was under way, that he intended to appoint an expert committee to look into this very matter. Upon learning of the work of the Association, this committee coalesced with them. I read from a report by the President of the Boston Branch of the Association of Collegiate Alumnæ:

"The direct result effected by the reports of experts and alumnæ was a recommendation by Mayor Quincy for an appropriation of $300,000 for a part of the needed changes. The Boston city council voted the sum, after a three months' political wrangle as to whether the school committee or city superintendent of public buildings had the lawful right to direct the expenditure of this money. The final decision being in favor of the school committee, another delay ensued on the refusal of the school committee to use any of the plans and estimates made, without their authority, by the mayor's expert commission." After further delays the work was begun. "From the first it was evident, and all facts since have proved, that the $300,000 was wasted, and not spent to advantage. The school committee's plans, in some cases, called for an expenditure of twice as much money for unsatisfactory results as would have been called for by the carefully-worked-out plans of the expert commission, the men best fitted by experience, ability and character to make such plans. These facts, considered in connection with the deplorable sanitary and hygienic conditions brought to light by the alumnæ and expert investigation, proved conclusively to those directly interested, the irresponsibility of the school committee and the futility of any further effort in that direction for the good of the schools. A change in system of school administration was seen to be absolutely essential." The alumnæ association, therefore, went to work to draught and present to the legislature a bill for the reorganization of the school system; and the papers this morning announce that the bill has been reported to the senate by the educational committee of the legislature.

This is the result of the work of an expert commission on school hygiene here in this city of Boston within the last three years. Philadelphia has had a similar experience. As in most large cities now, they have there an organization of public spirited citizens banded together to improve the condition of public schools. They began their work with school hygiene. They all begin with school hygiene—I do not know why, unless because laymen rush in where only doctors should dare to tread. The efforts of the Philadelphia organization came to much this same end—tied up in political wrangles in the board of education. They saw they must have a better board of education; the members of the board were appointed by the mayor, and that meant a better mayor; so that society, which started out to work at school hygiene, has turned itself into a municipal reform club, bent upon purifying city politics.

These are typical examples of the conditions under which work in school hygiene must be done today in our American public schools; and I hold that if under these circumstances, or any circumstances, there is any one connected with the public schools, physical trainers or anyone else, who can coöperate with the authorities to secure better hygienic conditions, it is to the best interests of physical education, of education as a whole, and of humanity, that they should do so.

If we ever get to a position where one person can be employed for this subject alone, would anyone doubt that such men as I have mentioned were competent? Yet, if the medical degree is necessary for physical trainers, it is necessary for others. Why this discrimination against the physical trainers? Why not say to the psychologist and others "Hands off of this subject unless you have a medical degree?" A few days ago I asked a man who is thoroughly acquainted with the educators of this country from Maine to California and from north to south, how many of the recognized experts in school hygiene held medical degrees. He told me that he only knew of three in the entire country. Are we legislating for individuals? I think not; and it is well to consider the limitations of the field before passing this resolution.

It is also well to bear in mind that to pass this resolution means to repudiate the university courses I have mentioned. It also means to repudiate the work of the normal schools of physical training. All of these schools give work upon school hygiene. How can you say that their graduates are experts in gymnastics and not in hygiene, when they are given a diploma covering both subjects?

Would you find any psychological society passing such a resolution as this, limiting the work of its members? I think not. On the contrary, the greatest contributions being made today to the subject of school hygiene are by the child students and psychologists. There seems to be an awakening on the subject among all lines of educators. You can scarcely take up an educational journal without finding some article upon this subject; and those signed with an M.D. after the author's name are the infrequent exceptions, not the rule.

Probably the most influential body of educators in this country is the Department of Superintendents of the National Educational Association. A few weeks ago that department held its annual meeting at Columbus, Ohio. Dr. William T. Harris, United States Commissioner of Education, offered a resolution, which was passed, recommending that the National Association make an appropriation of $2,500, to be offered as prizes for essays on school hygiene. The resolution did not stipulate that the prizes should be awarded only to those holding medical degrees. If six weeks after the passage of that stimulating and encouraging resolution by that dignified, scholarly and influential body of educators, this association shall pass a limiting and repressive measure, proscribing the work of its members, I for one shall be ashamed of my organization and my profession. We had better change our title to the American Association for the Stagnation of Physical Education.

No, the 400,000 educators of this country will go right on developing experts from among their number, and the universities will go right on turning out their graduates. If this association thinks it can put a fence around the subject of school hygiene, it is vastly mistaken. The spirit of this resolution is wrong. This association should encourage and incite its members to continually greater and broader work, and above all, it should seize upon every possible opportunity for furthering the subject and getting the actual work done.

It was with this idea that a majority of the New York society passed the following resolution, which I offer as a substitute for the one under consideration:

Whereas, Though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic, but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable part of education, therefore, be it

Resolved, That the interests of physical training are conserved by emphasizing, in the special preparation of the teacher of physical education, greater attention to the allied hygiene, such as adjustable furniture, the testing of vision, etc., and to the principles and practice of general pedagogy; and be it

Resolved, That it is contrary to the best interests of physical training for teachers of gymnastics and directors of physical training, unless they have had special preparation, to profess, or be expected to practice Mechanotherapy.

Mr. Hartvig Nissen: "It is a very difficult task for me to come up after these other speakers to say something with regard to this resolution, especially as I have the misfortune to have been born on the other side of the water. It is especially a great misfortune here in Boston just at present, when Boston is for Bostonians and for nobody else.

"In the first place I want to agree heartily with Miss Bancroft in regard to school hygiene. Then I want to take up the resolution in regard to mechanotherapy. If the resolution had stated that it is contrary to the best interests of physical education for the gymnastic teacher or director of physical training to practice mechanotherapy I could understand it, because then I would take it that it would be contrary to the best interests of physical education that such a teacher should divide his attention into therapeutic treatment. But that is not what is stated. It says 'unless they have taken a medical degree.' * * * Now what does this mean? It means that we who have studied the physical conditions of the human being, who have been practising mechanotherapy for a score of years, who have been teaching the children, the teachers, the nurses, the doctors themselves,—that we are not competent to give this.

"Now, then, how would it be if we are told we cannot do this, we must leave it to the medical doctor? I would like you to pick out twelve doctors among the seven or eight hundred in Boston who could tell me what kind of exercise to give a person with such and such scoliosis or other kind of ailment? I don't believe you would find twelve doctors to do that. Of course I understand what they are after. Those who give mechanical treatment, those who really have made a study of it and want to advance, they are perfectly willing that it should be under the advice of a physician, but what shall a man do when he happens to meet physicians who don't want coöperation? A number of years ago I was called in by a physician to a patient in Washington. He asked me to apply massage to the patient. I asked what was the matter and was told it was none of my business. I saw that this case was very feverish. I took the liberty of taking his pulse, 120°. I said, 'No, I cannot do this.' He asked why. I would not do it and left him. About two weeks later I met the same physician and asked him how that patient was that he had asked me to treat. He said he died the next day. 'Well,' I said, 'don't you think it would be said that I had hastened his death if I had given him treatment?' The physician said I might be right, but from that day I have had a good friend among the physicians that I did not have before.

"Another case came to my notice some years later. There was a lady who had water on the knee. Her friends urged her to have massage treatment. The physician finally found he had to do something, so he put the knee in plaster and sent for a lady to give massage for the rest of the body! One year later the lady, instead of being better, was worse. The doctor was dismissed and another called. He sent for me.

"I consider myself one of the pioneers of this kind of treatment in this country, and of course I have had a great deal to work against. Now, my time is occupied; I shall not go into mechanotherapy very much, but I want anyone who has studied it, to have the right to do so if he wants to. I hope that the competent gymnastic teacher, the director of physical training, has his salary so well fixed that he doesn't need to do anything else.

"It is in the medical schools that one should learn mechanotherapy if you want the physician to practice it. The medical schools do nothing of that sort. They have a few lectures once in a while. I have been told that the nurses might be the right persons. I have been told that they give the right treatment because they have some training—a dozen practice lessons in massage and three or four lectures by physicians; that is what nurses have in this matter. We who have made the study of it I think are the first to do it, but I am perfectly willing to say that it should be with the advice of the physician. That means that he tells the practitioner to do this or that. If we do that, we will be all right, there will be no trouble with humbugs. But there is one thing, and that is, the physicians who give such advice know to whom they give it; the physicians are thus the ones to blame because there are so many humbugs on the field.

"I therefore agree most heartily with the amendments of the resolution that the New York Society has made, only I should like to modify the last part of the resolution as follows: 'That it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training, unless they have had special preparation, to profess or be expected to practice mechanotherapy, and that it should be by the advice of a medical physician."

Dr. Fitz: "The challenge thrown down to the medical men engaged in physical training should receive a reply.

"As one who was trained as a teacher (not of gymnastics) in a normal school, and who has taught in normal schools and subsequently studied medicine for the sake of becoming acquainted with the hygienic aspects of school problems I wish to reply to some of the statements that have been made.

"The whole question has, in my mind, been obscured. It is not asked whether those who have had a special training shall be considered experts along the lines of their training, but whether those who have had the ordinary training of a normal school of gymnastics shall pose as *experts* in school hygiene. I think that the question can be most readily answered by asking those of normal school training present to signify by raising their hands whether they consider themselves experts in school hygiene in the sense meant by the resolution. (One hand is raised.) Has not the question been candidly answered?

"The motive underlying the introduction of this resolution has been unfairly impugned. There is no desire to keep school hygiene for the exclusive use of physicians. There is a desire, however, to prevent those who have not had proper training from exercising this function. I believe that this desire is shared by those in charge of the normal schools of physical training throughout the country. The sole purpose of the introduction of this resolution, so far as I understand it (I did not offer the resolution), was to emphasize the fact that because an individual is a physical trainer he has no more right to call himself an expert in school hygiene than has every other teacher. This delimitation has seemed necessary for two reasons: the training possible in a two years' course as ordinarily given in the normal schools of gymnastics, does not permit a sufficient study of school hygiene to give the graduate any standing in the subject; and, secondly, it is unwise for the teacher of gymnastics to assume too many responsibilities in the school work.

"The normal schools of pedagogy are devoting more and more time to the subject of school hygiene and their graduates who become the regular teachers of the classes have fewer children to look after, are with them more continuously, and hence have better opportunity for studying them as individuals, so it is wiser that the responsibility for detailed examinations and observations to determine the character of eyesight, hearing, and the general condition of health should be borne by these regular teachers. The argument that the regular teacher may not be thus prepared is balanced by the fact that the physical trainer himself is also unprepared; therefore the whole question of who should take care of school hygiene should be determined by the consideration of the number of children under the charge of the regular and gymnastic teachers respectively, the character of the experience and training of both, and their opportunities for detailed study of the children. I cannot see that there is any advantage whatever in favor of the physical trainer, as such, assuming the responsibility, whereas there is every disadvantage. The physical trainer who wishes to use his ability as an expert in school hygiene as a lever to get into a school system, should rest that claim on personal representation of the kind and amount of work he has done in the specific line of school hygiene, rather than on any resolution passed by the A. A. A. P. E.

"The physician has had the training in anatomy, physiology, pathology and hygiene, has had the opportunity to study children in the clinics, and has studied diseases so that he is able to recognize their symptoms, even when they are intangible; in short he has a basal knowledge which will enable him quickly to study school conditions and become expert in detecting departures from the normal in the school children. The physician who is also a physical trainer has thus the double advantage of education and may be trusted to do safe and helpful work along the lines of school hygiene.

"Miss Bancroft does not seem to realize that at least nine-tenths of the real productive work of the study of school conditions which forms the basis of the conclusions which many of our so-called experts quote has been done, not by teachers and especially not by physical trainers, but by physicians.

"I believe thoroughly that it is to the advantage of physical trainers to avoid posing as experts of school hygiene unless they have had the special training which preëminently fits them for it. This, of course, is not to be interpreted to mean that they are not contributing by their work to an improved hygienic condition of the children in the schools, for undoubtedly they contribute more than any other teachers to keep the children in a normal physical condition, and for this they should receive full credit. Their claim, then, should be that the work they give is of the highest hygienic importance for the children, but that they do not propose to treat the children as physical experts any more than the regular teachers treat the children as mental experts. I cannot but think that when teachers of physical training take their stand upon this ground, they will succeed in the schools and at the same time will win recognition and honor for honesty and moderation. It is the extravagance of claim on the part of many physical training teachers which has sometimes brought physical training into disrepute."

Miss Bancroft moved to amend the resolution and said: "In doing so I wish to disclaim all animosity in the discussion that has been given. Anything that may have appeared that way was probably because, after a sincere and earnest attempt to discover the purport of this resolution, a gauntlet seemed to have been thrown down. If it was a friendly hand that was held out instead of a gauntlet, that only proves my first point, that the resolution does not state clearly what it means. As all of the speakers have been agreed that special training is necessary for the work indicated, the mistake would seem to have been in specifying what that special training should be; it is the specification of the medical degree that makes the difficulty. I therefore move to amend the resolution before the house by referring the whole matter to the Committee on Resolutions, with instructions to rewrite the original resolution and present it to the Convention on Thursday morning, when further discussion can take place."

Voted.

An invitation to the gentlemen to make free use of the rooms of the Technology Club on Newbury Street was submitted in a letter from Mr. Munroe to Dr. Hartwell.

Meeting adjourned.

Wednesday Afternoon, April 5th.

The Committee on Credentials announced Miss H. I. Ballintine and Miss Janette Trowbridge as delegates from the Hudson River Branch of the A. A. A. P. E. (entitled to one vote).

The Chair announced the appointment of the committee to determine the place of the next Convention, etc.: Mr. J. B. Hillyer, Dr. J. W. Seaver and Mr. Chr. Eberhard.

Certification of Gymnastic Teachers.

Discussion as to the advisability of the A. A. A. P. E. undertaking to determine and certify the qualification of teachers of physical training.

DISCUSSION.

Dr. G. W. Fitz, Cambridge.—"Mr. President and Members of the Association: I wish to speak briefly upon certain phases of this question which was suggested to me by an editorial in 'Mind and Body,' and was subsequently submitted to you in the REVIEW. A rough outline of the plan which has seemed to me to be feasible is as follows:

"A board of examiners should be appointed to constitute a commission whose duties would be to prepare a set of examination questions for the graduates of the normal schools of gymnastics, to pass upon the replies to those questions, and to bestow certificates upon the successful candidates. It would devolve upon the normal schools at the time of graduation to obtain a set of sealed examination papers from the Commission, and upon the day appointed by the Commission for the examination, to place the questions before their pupils and immediately thereafter to forward the papers to the Commission. The practical examination would naturally be upon that form of gymnastics favored by the individual school, and the certificate would naturally state this.

"Upon the presentation of proper evidence of qualifications, the certificate could also be given by the Commission to successful teachers of gymnastics.

"It would further devolve upon the Commission to supervise the curriculum of the normal schools of physical training and insist upon an adequate training in certain fundamental branches, as anatomy, physiology, first aid to the injured, hygiene, etc. Upon the decision of this Commission would rest the acceptance of the curriculum as permitting the graduate to apply for examination.

The advantages of this system are as numerous as obvious. A uniform and basal training of the physical educator would be established, which, by commanding respect would strengthen our ranks and make impossible either the poorly trained or the narrow extremist. The candidate would be insured an unprejudiced treatment at the hands of the Commission, since it would include representatives of the various schools of physical training. It would give added strength and broadness to the curriculum of the normal schools, insuring against the neglect of certain fundamental lines of work.

"One of the results of this plan would be the division of the list of members of the A. A. A. P. E. into two classes, those who are actively engaged in teaching, and those who are merely interested in physical education and willing to give it their moral support. Some mechanical means of making a distinction between these two classes could be easily adopted. The only difficulty which suggests itself to me is that which has been met in England where a certain jealousy between the different schools of physical training has resulted in imperfect coöperation. This, I feel sure, is but incidental and could not arise here because of the nature of the Commission itself."

Dr. E. H. Arnold, New Haven: "I am very much in favor of raising the standard of efficiency of teachers of gymnastics, and of course I am interested in this theme. However, I cannot see my way clear to assent to the plan here proposed.

"First, the question arises, of what practical use would such a certificate be? What would it mean to the outside world? It would mean no more than the diploma of one of the normal schools does now. This Association is not incorporated. Some of the normal schools are corporate bodies and have certain rights under the laws of their state, but this body is not corporate and has no right to give a certificate; it would not be respected. Anyone who wants to have ample proof that a certain pupil has a certain knowledge of this or that learning is going to ask for more than the certificate. Suppose a graduate wants the certificate. She goes down to New York or Boston, etc., and gets reëxamined as to whether she can practice that profession in that town. Then she has to get a certificate from the A. A. A. P. E., and then she has to get reëxamined again! It would not carry any weight; it is no advantage to the public because they question one and all certificates and all diplomas except in New York State where they have a regent's certificate. Unless we have our normal schools turned over to the state (which we are not ready to have done yet) we are not going to have state certificates that would carry weight."

The discussion was continued by Baroness Rose Posse, of Boston, as follows:

For some years it has been the desire of many members of the American Association for the Advancement of Physical Education, that the appointment of teachers of physical training should be governed by the merit of the candidates, rather than by influence or favor, whether political or social.

In 1895, Baron Nils Posse, the founder of the Posse Gymnasium, wrote as follows:

"If the A. A. A. P. E. would appoint a national examining board before whom candidates could appear, and if successful, from whom they could receive a certificate as to ability as teacher of gymnastics, a uniform standard might be obtained, factionalism would give way to scientific and cosmopolitan gymnastics, and all schools of physical training could become of equal rank.

"This, however, presupposes that the examining board consist of experts on gymnastics who are not in any way biased, and whose opinions are not guided by personal gain. Also, that the candidates be examined in all the branches, both theoretical and practical, essential to the preparation of a teacher of gymnastics, and likewise that the candidates should have already proved their skill as teachers.

"Such a certificate from such a body of men would be worth something both to the possessor and to the school desiring a competent teacher of gymnastics. A competitive examination between candidates for the same position could be deferred until there are more positions to be filled and a greater number of persons engaged in the work.

"I believe that some such measure would give renewed stimulus to the cause of physical training; would be agreeable to all good schools now existing, would be satisfactory to all who have studied or who are now studying gymnastics; would sift out the incompetent teachers, and by forcing all schools to keep a high standard, would raise the status of gymnastics in the United States so that it would be surpassed by no other country in the world."

Recently this matter of registration has been more or less publicly discussed, and from considering whether or not such a thing is desirable, we have been rapidly borne along to the question of how it is to be accomplished. With all due respect to the opinion of those who are in favor of this measure, I say that I believe it to be premature.

We must all agree that the idea is an excellent one, and I am sure not one of us is indifferent to the great need of doing everything possible to protect the rights of competent teachers and of raising the standard of the profession, but because the condition of gymnastics in this country today is such as to preclude any satisfactory arrangement being arrived at, and because I believe restriction of membership in the A. A. A. P. E. at this time is ill-advised, I am opposed to the measure.

When registration has been adopted by other societies, what has been the object? To protect the properly trained from the competition and bad reputation of the pretentious and the untrained, to give added dignity to the society through the fact that it endorses only a very high standard of work.

But let us see what would happen, if, under present conditions, the A. A. A. P. E. should take this step.

Judging from the published reports, this society includes about 600 members. Suppose in the year 1900, the suggestion contained in a recent number of the PHYSICAL EDUCATION REVIEW should be followed, and it should be required that each of the 600 take an examination in anatomy, physiology, hygiene, physiology of exercise and emergencies. (To this list should be added special kinesiology, pedagogy and medical gymnastics.) How many members would present themselves for examination?

Members of this society who have already passed the rigid examinations of medical schools and of certain normal schools of gymnastics would not look with favor on such a requirement, and those who are ignorant of the subjects mentioned, or who had not recently given time to the study of them, would certainly not appear before the examiners. The ultimate result would be that instead of 600 members, there would be an end to the society.

Are we so great in numbers that we need to consider a thinning-out process? Are there so many persons rushing headlong to enroll themselves in this society, that we must take stern and instant measures to force them back? During the last five years have we not heard of the passing of more than one local society from lack of support among the members and utter indifference of outsiders? Six hundred is a very small proportion of the millions who make up the population of the United States.

If we wish to protect the well-trained and the educated gymnast from the competition of his more fortunate if less worthy rival, is it not better to lure the latter into the meetings of the society, and then bring to his notice, through interesting papers and discussions, how much there is for us all to learn, so that he shall be led to appreciate his own lack of knowledge, and to thirst for better advantages?

In considering what branches to include in the list of requirements, it became clear, that the only common ground would be the underlying sciences on which gymnastics is based, and not the science of gymnastics itself. The reason for this unique situation lies in the fact that persons who possess the education requisite to enable them to serve acceptably on most examining boards are incompetent to conduct an examination of this kind, because of their lack of technical knowledge. And those who are regarded as authorities on the subject of gymnastics could not produce a text which would be both comprehensive and satisfactory, because these very leaders hold decided and quite opposite opinions as to what are the correct answers to the questions that must necessarily be asked. It is a clear case of "When doctors disagree."

If it were attempted to classify the applicants according to the kind of work they wished to undertake, a truly Herculean task would present itself to the examiners. To decide just what a teacher of *public school* gymnastics should know in contradistinction to what should be expected from a teacher of *private school* gymnastics,—to decide how much more should be required from a person who aspired to be a gymnasium director, than from an ordinary, every-day teacher of gymnastics,—to decide how much knowledge of medical gymnastics should be expected from the teachers of the various stages of proficiency,—to find persons who had the education and the training necessary to make out a satisfactory examination in both educational and medical gymnastics are but a few of the questions that would confront the society and which would call for long and patient investigation.

Even if these difficulties were overcome and examinations were successfully established, it is highly improbable that the school boards would accept the A. A. A. P. E. certificate as a substitute for the examination they require of all who desire positions as teachers, any more than they now accept the diploma of the best colleges and normal schools.

The work of fitting teachers for the gymnastic profession is now carried on in several normal schools. The standard of each school is individual, and at present it is unquestionably higher than it would be if gymnastic work were to be judged only by such teachings as would be approved and understood by any examining board that is likely to be chosen under existing conditions.

The diploma of an accredited normal school of gymnastics, then, should be of more value than a certificate from the A. A. A. P. E.

Boston and New York require teachers of physical training in public schools to pass a special examination. Doubtless, other cities will follow their example. I think, at least, for the present, we may safely leave the responsibility of examination in the hands of the school committees.

Some stress has been laid on the fact that the gymnasts of England have adopted this plan, and an association called The British College of Physical Education issues certificates to those who choose to pass its test. Merely because England has done this is not a reason for our doing likewise. As there is but one normal school and one training school for teachers of gymnastics in England, a Board of Regulation is much more needed there than here. Furthermore, I have heard from various sources, that the English experiment has not been startingly successful.

One suggestion that was made by the PHYSICAL EDUCATION REVIEW that a commission should be appointed to examine the programme and teaching in the various normal schools of physical training, "and that this commission might give their own certificate to those whose training had been satisfactory" has much in its favor.

We might go farther and petition the legislatures to pass a law making such a test necessary to the existence of private normal schools, and begging that the commissioners be appointed by the state. But in order to have legislation, or present a petition, it is well to have a considerable number of petitioners. Are we in a condition to ask for special legislation?

My principal objection, then, to this question under discussion is that we are not prepared for it.

But since I believe it is of the utmost importance that those in whose hands rests the physical health of the nation and of a generation to come should be possessed of the best qualifications for such a responsible office, I would propose a preliminary or substitute measure.

It is that the A. A. A. P. E. request the leading normal schools of physical training to send to a commission appointed for the purpose—

1. A list of subjects in which they expect teachers of physical training to be proficient.
2. An outlined course in each subject, showing how much ground is to be covered, and what methods are employed in teaching the subject.

3. The length of time required to obtain a diploma.

From these, the commission could select a list of requirements which should serve as a standard for the normal schools now existing and for any others that may be started in the next few years. In order to be recognized as teachers of the first rank, candidates for positions would have to prove that they had met these requirements.

In this we should be following a precedent established by the Association of Collegiate Alumnæ, an association composed of the leading American colleges for women. This association chooses a committee, which decides what colleges shall be admitted to membership. If the requirements for admission to a college or university fall short of the standard of the New England colleges —"the New England requirements" as they are called—the graduates of that institution are not admitted into the association. The effect of this measure has been to raise the standard of women's colleges all over the United States.

Should we not give more energy and thought to bringing persons into the society, rather than turning them out? This country has not yet begun to appreciate what may be termed Physical Education. The meaning of the word is more or less vague to the majority of Americans. Judging from the apathy that possesses the great body of educators toward this branch of education, it will take at least another decade of vigorous and unceasing endeavor on our part, before we shall be able to see a proper awakening to the importance and dignity of the profession of making and keeping health.

The work that the local societies have been doing is exactly what is going to be productive of good results, viz., in interesting and enrolling as members of the society intelligent persons who are well educated, whether along this special line or not. If they are not physical trainers, so much the better for the society; for if they are possessed of the spirit of the time, they will not wish to be uninformed on matters which are constantly being discussed around them, and they will have the desire to learn, and thus we shall have added to our ranks those who are well fitted to be of the greatest assistance.

This work has started most auspiciously among the physicians. For many reasons they are the outsiders most likely to become interested.

But there are more than 3,000 physicians in Massachusetts alone, so that our work with them has scarcely begun. We have yet to interest the great body of educators whether superintendents, supervisors, principals or specialists. Every one of them ought to be well informed on the subject of physical training.

What the members of the A. A. A. P. E. individually need is to come more closely together, to investigate, to experiment, to discuss, that we may at a not too distant time arrive at conclusions that shall be adopted by every teacher of gymnastics in the United States, so that through the strength that accompanies union and good organization, we may become a power for the benefit of mankind.

Let us hope that the time is coming when we need not ask what this school teaches, nor what that man believes, but rather what opportunities has this school for promoting the common cause, what original contributions to the science of gymnastics has this or that man made?

Before we establish an examining board, let us have one form of gymnastics, which we can make rational. We shall then have more reason for asking from the public the respect and consideration that the dignity of our honorable profession demands.

Mr. H. Nissen, Boston: "I fully agree with Dr. Arnold and Baroness Posse, and I don't see that we are at this time in any way capable of giving any kind of an examination or certificate from the A. A. A. P. E. I think that what the normal schools are doing at present is a very good thing indeed; they stand very high as they are; at least that is the case in Boston. The school committee always require anybody wanting to teach gymnastics here, to take an examination before the School Committee, so the certificate of the A. A. A. P. E. would be no good; it would not be considered any more than any other certificate. The principal thing is, can they stand the examination before the committee? If they can do that we don't care very much from what school they get their certificate."

Dr. W. Channing, Brookline: "I would like to say just a word on the subject. I do not feel that I am in a position to pass judgment upon this resolution as to whether the time has come or not. No doubt the time will come sooner or later. The medical profession requires just this sort of thing. It is always hard to compare one profession with another, but in the medical profession to belong to a society it is necessary to have some kind of examination. No matter how well educated a physician is, or what school he comes from, if he wants to belong to the Massachusetts Medical Society he has to pass an examination, and if he wants to practice in the state he has also to pass an examination. Undoubtedly for the medical profession it is a very good thing, and I have not the slightest doubt that all of the normal schools of gymnastics that are thoroughly well managed, in the end would be very glad to have some kind of a certificate. I am certain it would be a help to the general public. I do not quite understand how that certificate or examination is going to repel people from joining this Association. I think that in some way the public should know more about it, and any means that can be taken to call their attention to the subject of physical education is of the greatest importance. It is true, as has been stated this afternoon, that physicians know comparatively little about physical training, very much less than they ought, and therefore they cannot in many ways be good authorities for the sort of physical training that children should have in the school. Of course when you say physical training you are combining any quantity of things, as Miss Bancroft said this morning, and life is not long enough to try to explain all the different elements that might come in for consideration; but if physicians are so apathetic because they don't have any means of knowing about it, your duty is to teach them. Physicians, of course, don't know everything. Miss Bancroft did seem to think some of them thought themselves repositories of a vast amount of knowledge, but many of them don't, and how are they to find out about this particular matter? I think it is the duty of this Association to teach them as well as other people, and whatever you can do in this way will be of real service to the cause of education in general.

"Why is the REVIEW so important? Because it is going to do this very thing; it is going to help the public to know something about your work. On general principles I think if we can compare your profession to the medical profession, the examination is going to be of great service in the end. The question is whether the time has come or not."

Dr. W. Truslow, New York: "This point has been gone over considerably in the New York Society. I have been delegated to present it here and I have hesitated to speak so far because as Dr. Arnold has brought out, and as Baroness Posse has elaborated, it is a good deal of a question whether we are ready to undertake this. But, as Dr. Channing says, it is coming sooner or later; and we should fairly treat the question, and consider how much advantage this is going to be and what effect it will have on the normal schools of physical education. I would like to speak on the point that Dr. Arnold raised, namely, that in New York State the medical schools had not raised the standard of their requirements since the State Board of Regents had examined all candidates for license to practice in the State. I personally had to undergo the examination of that Board, and have watched the progress of those examinations through the various years since then. In all the medical schools the standard has been marvellously increased and is now much more severe than that required for any of the individual schools, with perhaps but one or two exceptions. So that in New York the effect of the examinations has been, I am sure, to elevate the standard of the individual schools, and thereby of medicine at large.

"Now the New York Association will not present a new resolution because another one is before us, but I would outline in the form of a resolution what they have given, in order to show how much more sweeping we think this is going to be. We say that,

"*Whereas,* We believe that the interests of Physical Education in this country require a high standard of excellence, with one and preferably two years of special preparation of the teacher, and that the influence of this Association should be exerted toward this end, therefore, be it

"*Resolved,* That the American Association for the Advancement of Physical Education shall at this Convention appoint a Committee with membership sufficiently large and representative of the many scattered societies and various phases of the subject of Physical Education, which shall thoroughly investigate and report to the next Convention:

"(1) A rational and efficient *curriculum* of studies necessary for one intending to teach Physical Education in schools, colleges, etc., in this country.

"(2) The courses now offered at the various schools, colleges and other public and private institutions in the country, where *normal training* in Physical Education is given, with a view toward officially *recommending* such as prove to be edequate; and

"(3) Conduct such *examinations,* theoretical and practical, for such candidates as may desire it, on such subjects as the Committee may deem a part of the necessary equipment of the teacher of Physical Education, with the view of *issuing a diploma* of the American Association for the Advancement of Physical Education to such candidates as have passed satisfactorily."

Mr. J. B. Hillyer, New York: "One of the speakers preceding meseems to have the idea that any such examination as we have referred to, might cause the membership of the Association to become smaller than it was previously. It would have nothing to do with the membership of the Association so far as I can see. There is no connection. The only thing we want is to have a commission appointed which shall draw up a set of examination papers. If we had that set of examination papers before us now, ready to give an examination by our accredited representatives or committee from this Association, if one member of this Association took that examination and passed it—that one member would be picked out as so much better than a great many of the other members of the Association. For those that are not members of the Association it would mean one qualification which they lacked. There are certain persons who have never had the opportunity to take a normal school course and who never will, but who could possibly pass such an examination, and by so doing, acquire a certain grade, or be graded in the estimation of others as standing up to the grade of a normal school graduate, even higher, according to the severity of those examinations. If one person took that examination, that would be something done by this Association. If we had those papers in our hands for a year and no person presented himself, we could drop the undertaking; there would be no need of going on with it. But if one person who took the examination, passed it, that would be so much done; or if two or three or five, etc., took it and passed it, it would be so much done. The persons that pass the examination might have a little star after their names, and by seeing the star, you would know that they had that certificate and stood higher than certain others; it would have a certain recommendation to the school boards, etc., and would have its influence."

Dr. Fitz: "As has just been stated by Mr. Hillyer, there need be no change in the membership of the A. A. A. P. E. There would merely be introduced a distinction between those who have passed an examination bearing witness to a certain stated amount of work, and those who have not. As Mr. Hillyer has pointed out, those individuals who have not had the opportunity to go to normal schools (and the normal schools are comparatively few) would still have through their certificate the means of getting a recognition. The value to the individual would thus be sufficient to make the certificate desired. Today, when a number of candidates apply for a position in a town, what examination can be given? The school committee are ignorant of physical training, the subject has very possibly not been taught in the town before, and a just decision upon the relative merits of the candidates is rendered impossible. The one who can present his claims best gets the place. This plan would obviate the possibility of such injustice."

"I certainly hope this matter will not be rushed through without full discussion, because it is a vital change. I believe that something of this sort should come, but I am not convinced that now is the time. I simply wish that certain things which tend to obscure the issue should be cleared up. So far as the possibility of making changes in the Constitution is concerned, I believe that it is conditioned solely by the necessity of obtaining a two-thirds vote of the delegates."

Mr. Hillyer: "Mr. President, I would like to present as a substitute, the resolution as presented to the New York Society, which defers the whole matter to the next Convention."

Voted.

After further discussion it was moved that a committee of nine be appointed by the incoming President, to which the task of carrying out the provisions of the New York resolutions should be intrusted.

Voted.

RESOLUTION.

Whereas, We believe that serious obstacles to the Advancement of Physical Education in the United States are found in the undue and premature promotion of athletic sports, and the well-nigh general failure of school and college authorities to recognize and promote approved and rational forms of physical training, therefore. be it

Resolved, That, while school games and plays are highly desirable, the introduction and support of gymnastic instruction in city and country schools is of too great importance to be subordinated to the interests of games and plays.

The first speaker in the discussion was to have been Mr. G. E. Johnson, of Andover, Mass., but inasmuch as he was unavoidably absent because of illness, his discussion was omitted. The subject was therefore opened by Miss Rebecca Stoneroad, Washington.

Miss R. Stoneroad: "I am inclined to look upon plays, games and athletics as the natural forerunners of physical training, considered in its scientific sense, and not as obstacles to its advancement. In the evolution of physical education in the United States, it is but natural that the first efforts of thinkers and reformers be along the line of plays and games. The American people, particularly those who influence school measures, being intelligent and educated, know the value of exercise in general as a means of health, while they know little of the value of its special form in the shape of gymnastics. Plays and games in school have been the outcome of a popular demand that physical exercise, so necessary to the health of the organism, take its place in school life. Even athletics in college have been brought about by the collegiates themselves insisting on this agreeable form of exercise, and not originally through any desire on the part of college authorities to furnish exercise for the youth.

The cause of physical education, in its general sense, has made a tremendous stride when school authorities have become aroused to the value of plays and games to such an extent as to introduce and encourage them in their educational institutions. We need to congratulate ourselves that this first stage in the appreciation of exercise as a means of development has been reached. *Now* it becomes our duty to lead school officials to an intelligent understanding of and interest in systematic physical exercise which through training forms the basis for a sound education. It is only within the present generation that we have progressed beyond the three R's as supplying all the demands of a complete curriculum for elementary schools. Reading, spelling, writing and arithmetic alone furnished the means for intellectual effort on the part of our ancestors. At the present time this curriculum has so broadened as to include many lines of work whose chief hold on the public school system is due to the mind training resulting from their performance. This is notably true of drawing and all forms of manual training, which have their permanent place in a course of instruction, not in the hope of making artists or carpenters of the children, but for the training of hand and eye, those end organs, whose repeated action means a corresponding development of the nerve centers directing the movements. It is well to bear in mind that these branches of learning did not become factors in educational work without strenuous efforts on the part of their advocates, involving expenditure of time, effort and money.

Physical training follows in line with these subjects. Its natural evolution is through plays and games, the recreative and hygienic value of which is a matter of general education, and the fondness for which is universal among children. Now at this stage of development, let the biologist, the physiologist, the psychologist, and the specialist in child study, with his latest scientific experiments, show the educationist the bearing which physical training has upon the great work of education. How can such results be brought to the mind of educators, many of whom have not the time or opportunity for personal research, is the burning question. It is clearly evident that it is our duty as firm believers in gymnastics as a branch of instruction having pedagogic value, to collect such material and bring it to the notice of those who are forming the educational procedures of our country. We must first impress educational thought with the value of regulated exercise as a means of perfecting the organism and aiding in mental processes through training of the nervous system, then with the practical conditions of sufficient money and trained teachers, gymnastics will work their way into educational institutions and take their permanent place as a coördinate branch of instruction, complementing all other lines of educational work. Having educated specialists in charge of the entire department, plays and games will take their true place, predominating in the primary school and complementing gymnastics in the elementary and secondary schools.

I would not for one moment decry athletics in colleges. The excesses and abuses generally are the outcome of intercollegiate contests in which there is greatly the element of business instead of pleasure on the part of the athletes. Each college has its own problem to meet. It would seem that a wise policy on the part of college authorities could so control the minor evils that athletics for the sake of sport, recreation and health would be the rule, inviting all students so inclined to participate. In his plays and games the youth receives training in quick perception, ready judgment, will to execute and power to do and to endure whenever the necessity arises; the whole being performed under the most exhilarating circumstances and bringing out his individuality in a way impossible in formal gymnastics.

But by no means can games and athletics left entirely to the initiation of the individual, being spasmodic and irregular, take the place of a systematic course of physical training, under direction, thoroughly planned, adapted to the age and ability of the individual, taken regularly, based upon physiological laws and seeking the symmetrical development of the body.

These two great departments of bodily exercise must go hand in hand in a perfect scheme of physical education; each is incomplete without the other. Play bears the same relation to the whole that dessert bears to the entire dinner; to many it is the most agreeable part of the meal, but lacks the nutritious value of the meat course.

Dr. D. A. Sargent, Cambridge: "I find myself unexpectedly without the opposition which a sluggish nature sometimes needs in order to speak at all. I rather expected to hear a paper from Mr. Johnson, who has made quite a specialty of this question of plays and games, and I was inclined to hope also, that he would take the stand so many people seem to have taken within the last few years, although, I regret to say, that they have not come to the meetings of our Physical Education Societies.

"I find myself agreeing so heartily with the speaker whom you have just heard, that I can only commend everything she has said. But the fact remains, however, that there is in the public mind a feeling that the teacher of Physical Education, as such, is rather superfluous, that is, that if you have a gymnasium, and have playgrounds and boats and fields and woods for boys and girls to roam about in, these facilities are all that is necessary. Simply provide the opportunity and the play impulse will do the rest. Now, I regret to say that this measure has been adopted in many schools, largely as an economic measure. It is much easier and much more economical to supply a good plant and apparatus and trust to the ordinary incitements of play, because after the money is once invested that is all there is to it; but if it is necessary to employ a teacher, it costs all the way from $500 to perhaps $3,000 annually. That is an element of great expense, and unless the head masters of the schools feel the pressure in the direction in which you are working, they are rather inclined to advocate the play side, especially as it represents the popular craze just now.

"As physical educators, we know that play is essential to our work; it is made necessary largely through the school curriculum in order to counteract the dull and monotonous restraints to which children are subjected. The children are obliged to hold themselves in constrained positions, while their sensory nervous impulses are being continually played upon; there is no motor outlet, and the children put up with it until they can stand it no longer; then they twist and squirm about in their seats. Sometimes when dismissed they will go out of school with a bound and go through all the different gyrations possible, simply because they are filled with this play impulse which must have an outlet somewhere. That is physiological. I consider the provision for plays and games an absolute necessity in a department of physical education of today; our training would be sadly deficient if it were not for the sports and games that we introduced, largely, of course, as measures of instruction, but also as measures of relief from the hardships and constraints that are connected with the regular course. The simple games that are being introduced today, like basket-ball and battle-ball, are doing a great deal of good to those who have felt all along the need of just such an opportunity. They have felt that in order to be ladies, they had to keep themselves under certain restraints, as if they did not have all their lives to act under restraints, simply on account of their sex. But when we come to resorting to plays as a means of physical development, then I must admit that it will require a very much greater amount of knowledge to lay out a scheme of plays that would afford the necessary movements desirable for accomplishing the best results. Of course the aim of all physical training, even of plays, is to improve the individual. Physical perfection should be the aim. But all games are one-sided. I am using the terms plays and games as synonymous. We know in college some of the worst specimens of lop-sided development are men who have devoted themselves to certain lines of work, certain lines of games and sports; whereas, men who indulge in all-round sports, taking everything in its season, as skating, swimming, etc., who play a little foot-ball, base-ball, ride a bicycle and do all sorts of sports,—represent the most admirable specimens of development that we have. Plays and games never can be left to the individual child. The differentiation would take place among children just as in the older schools. Many teachers in England have become greatly troubled over this question. There the boys are compelled to play. I would just as soon think of compelling a boy to laugh or whistle, as to compel him to play when he has not the play impulse or spirit. You can, of course, protect the boy by classifying the plays; if you do not, the naturally efficient will come to the front, be the leaders and manage everything, and there will be a considerable number left out of the games. There is where the teacher must come in and help to arrange things. I heartily believe in sports, plays and games, but not as a substitute for physical training; they never can take the place of physical training, because of the difficulty of managing them. If left to themselves they would simply fall into the hands of the wealthy schools and the great mass of children would have no opportunity at all. Now it is for you to come forward and give direction to this movement, and to introduce the more formal gymnastics, relying, of course, upon your good sense and judgment in bringing in the plays and recreative games when necessary. If you rely too much on formal gymnastics you will find that plays and games will begin to assume more and more importance in the minds of the pupil and teacher than they would if you, of your own accord, recognized that recreative exercises serve a useful purpose in a scheme of physical education."

Mr. Hillyer read a letter addressed to the Chairman of the Convention, from Mr. James M. Barnard of Beacon street, Boston, in which the latter expressed the hope that the Association "will express the desirability or the non-desirability of the present excessive form of physical training as shown in the popular game of foot-ball."

Mr. Hillyer: "In the New York Society we had quite a long discussion on the differentiation between athletic sports and games, and *plays and games*. Some of us found that *plays and games* had a definite meaning established in the lower grades in certain schools, that athletic sports had nothing whatever to do with them, that there was no connection between the two; in other words, that that resolution referred in the preamble to athletic sports and in the conclusion to *games and plays*. Is there any ground for thinking this was done intentionally?"

Dr. Sargent: "I am not the author of the resolution, and I do not know what meaning the author had in mind in using the word play. To me a play is something which is spontaneous; play rises from the pleasure of action. Put a lot of children together and see what play means. They play at one thing for a while until the novelty vanishes and it becomes a little like work, then some one cries, 'Let's play something else.' That simply means that they are tired of one kind of exercise and the impulse comes to do something else."

"Now a game is a little more formal than play, but as Mr. Johnson stated in one of his published papers, the measure of the value of a game is the amount of work there is in it. I suppose foot-ball is entered into with the spirit of play, but it becomes, before the season is over, the saddest kind of work. Those of us who have been connected with athletic sports know that if the play impulses were simply relied upon to keep up the interest in the sports, they would fall by their own weight. Take away the newspaper notoriety and the large attendance at the games, and the interest of the players would soon die away. The great difficulty today in keeping up athletics in the city athletic clubs is that after students leave college and go out into the affairs of the outer world they lose the college spirit and have no stimulus to keep them up to their work. Very few come in to do any heavy work, because there is no sentiment behind it. Now sentiment is a very powerful thing in connection with this question of play. I want to say that even in athletics the sentiment that enters into the game, when the game becomes organized and the boys get together and do something for a purpose, often is the most valuable part of the game. If it were not for sentiment we would never have a union of action. The boys say: 'In order to accomplish our purpose, we will hold ourselves down to certain lines of practice.' It is a kind of moral training and is of great importance, but whether the exaggerated efforts due to sentiment best subserve the object of physical training or not, is a question. This whole question of athletics is one of very serious moment. After a few years we shall be able to get together statistics that will tell us the effects of these spirited exercises upon the youth of the present day. Now we cannot get at the facts. Of course the tendency of the colleges is to carry these sports to the extreme, and it is a serious question whether some injury does not follow; but with all the injury, I am prepared to contend that they do a great deal more good than harm."

Dr. Truslow: "I don't want you to get the idea that the New York Society is an organized body of objectors to all forms of resolution as presented, but as Mr. Hillyer has stated, this was a definite trouble that we found. The distinction between plays and games is not well defined. Again, it seems a proper place in which to express our belief that the director of Physical Education should have control over the athletics of his school or college. I would present the following substitute for the resolution:

"*Whereas*, We believe that two serious obstacles to the Advancement of Physical Education in the United States are:

"(1) The disproportionate promotion of athletic sports, precluding devotion of the requisite time and attention to thorough and symmetrical physical development, and

"(2) The too frequent failure of school and college authorities to recognize and encourage such systematic gymnastic training, therefore, be it

"*Resolved*, That while athletic sports are highly desirable, the introduction and support of gymnastic instruction in our city and country schools and colleges are of too great importance to be precluded by said sports, and that a more prominent place in the curriculum be urged for systematic gymnastic training, and be it

"*Resolved*, That to this end the Physical Director should have control of both gymnastics and athletics in schools and colleges.

"I am sorry Dr. Savage is not here to speak on this resolution as he expected to do. As you probably know, in his connection as Physical Director of Columbia University, he is Chairman of the Committee on Athletics in the University, and in that way he is one of the leaders in controlling Athletics in the University. In a discussion at one of our meetings he mentioned an athlete who had particular qualifications as a high jumper, but had a serious physical defect—hernia—which would prevent him from entering the competition, although the trainer of the college and the athletic committee were most insistent upon his participation. The Faculty Committee naturally finding it unsafe that his training should be continued, this man, as well as others mentioned, who were similarly hampered, was debarred from the contests. I understand there is no appeal from that committee's decision."

Dr. Sargent: "I would like to say for the benefit of those present, if Dr. Savage put himself in this position, he has my heartfelt sympathy and extreme commiseration."

The substitute resolutions offered by Dr. Truslow were voted.

Committee on Resolutions.

Dr. Gulick, Chairman of the Committee on Resolutions, reported back to the Convention the motion offered by Miss Bancroft for the formation of a Committee of Fifteen, changed by the addition of the word "approximately" in the description of the make-up of the committee, to read as follows:

Resolved, That the incoming President of this Association shall appoint four members to serve, with himself as Chairman, as a Committee of Five, which shall name a permanent Committee of Fifteen to draught definite recommendations for securing a fuller recognition of physical training in elementary, secondary and higher educational institutions. The said Committee of Fifteen to consist approximately of two directors of physical training actually engaged in the work of each of the grades of schools mentioned; one administrative head, as superintendent or president of each of these grades of schools; three psychologists, who have given special attention to manual and general physical training; and three *practising* physicians, who have made a specialty of children and youths of both sexes. The members of this Committee of Fifteen shall not necessary be members of the A. A. A. P. E.

This Committee shall be empowered to appoint sub-committees and to call conferences as they may see fit; to raise funds for the prosecution of their work, and, if necessary, to call upon the A. A. A. P. E. for funds to the amount of $50.00.

The final report of this Committee shall be issued in such manner as the original Committee of Fifteen may determine is to the best interests of the object in view.

Voted.

The Committee on Resolutions also recommended for adoption a modification of the New York Resolutions for Wednesday morning. After discussion, the resolutions were adopted in the following form:

Whereas, Though muscular exercise is capable of serving as a valuable adjunct in the promotion and restoration of health, its principal ends in school work are not therapeutic but educational and hygienic, and whereas we hold that systematic physical training has paramount claims to be considered and organized as a necessary and indispensable form of educational discipline, therefore be it

Resolved, That it is contrary to the best interests of physical education for teachers of gymnastics and directors of physical training *unless they have had special preparation*, to profess or be expected to serve either as experts in school hygiene or as practitioners in Mechanotherapy.

Resolved, That a medical degree in itself cannot be considered as a sufficient qualification for a position as director of physical training or teacher of gymnastics, and

Resolved, That a professional course of training is a necessary qualification for the teacher of gymnastics or director of physical training.

Meeting adjourned.

FIRST PUBLIC MEETING, WEDNESDAY EVENING, APRIL 5.

A public meeting was held at the Hall of the Boston Y. M. C. A., Boylston street, at eight o'clock, April 5, at which addresses were made by the President of the Boston Physical Education Society, Dr. R. W. Lovett, Dr. C. J. Blake and Dr. E. M. Hartwell.

Dr. R. W. Lovett.

"I am glad to say we have been looking forward to the pleasure of meeting you at the Convention. We are very glad of any opportunity that brings us in contact, as a society, with the general public. The public, I think, understand only too little of the aims of physical education. Every action which enables us to say to the public that the aims of this society are higher, their ambitions are higher, is to be welcomed. It is only by the coöperation of the public that we can accomplish what we want to do, and to coöperate, the public must be informed of our aims and of our endeavors.

"If the Boston Society is a vigorous working body, it is due largely to the gentleman here, the first president, Dr. C. J. Blake, whom I have the pleasure of introducing to you."

Dr. C. J. Blake.

"In the three formative years of its existence the Boston Society has had little opportunity to learn of the work of the other societies of the National Association other than through the pages of the official publication, and the assemblage of the National Convention in Boston has been looked forward to with a keen interest, which has added to the pleasure of prospective hospitality.

"The organization of the Boston Society was based upon the two propositions: firstly, that it should be scientific in its methods, and secondly, that whatever the differences of opinion of its members might be as to the means of accomplishment, its basal purpose should be the educational inculcation of the idea of the moral value and moral use of the human machine.

"The play and game instinct, which Froebel so deeply studied and which finds its expression in organized athletics, not only in our colleges. but in all sorts of educational clubs and societies all over the country, is one of Nature's leading strings which it is wise to wisely follow, and the very existence of the instinct giving a common meeting-ground to all sorts and conditions of men makes it a very valuable factor. It is an important adjunct to all teaching in strengthening something more than the muscles, and developing something more than the intellect. Physical training of the gymnasium has so far developed in the past twenty years as to claim a place in every intellectual scheme. That his impulse has not been confined to any limited portion of the community is shown by the fact that there are in the United States over one thousand gymnasiums for physical training and six gymnastic normal schools training teachers only. The place and duty of the physician and of the teacher in relation to this branch of education are evident; it has been their business to learn the capabilities of the human body, and they better than others can guard against ill-uses and estimate the value of physical training in the treatment, and increasing of the capacity for intellectual work and inculcating the moral principles of self-control and of expenditure of effort to the best results which tend to make the useful man and woman. It is both the pleasure and the privilege of the President of the Boston Physical Education Society to welcome the members of this Convention here assembled and I am his debtor for the opportunity to participate in your reception."

The Chairman then introduced Dr. E. M. Hartwell, the President of the National Association.

Dr. E. M. Hartwell.

"I find myself called upon to perform, in a sense, double duty. It was expected that his Honor, Mayor Quincy, would be present this evening to bid you welcome in the name of the city and to express his interest in the objects which this Association has at heart. But for the last two or three days Mayor Quincy has been indisposed, and has been obliged to cancel engagements to speak elsewhere as well as here tonight. He has asked me to present his regrets and to represent the city, which is more than I feel equal to, being a Bostonian only by adoption, and not to the manner born. But in the absence of the Mayor, I venture to call your attention to the rather unusual fact that the City of Boston has a chief magistrate who is not only interested in theoretical questions relating to the health and recreation of the people, but who has given practical evidence of his interest by personal effort and official acts. The Mayor was instrumental a year ago in securing through the Legislature, the passage of a bill to provide a comprehensive system of playgrounds in the City of Boston. He has further identified himself prominently with the policy of developing a system of public baths. The policy of providing floating baths for use in the summer was inaugurated as long ago as 1866. Under the present administration the number of swimming baths has been increased, and a corps of swimming-teachers organized for the first time in the history of the city. The reports of the Bath Department show that 3,800 children learned to swim during the summer of 1898, of whom fully one-third were girls. Mayor Quincy is also convinced of the wisdom of providing municipal bath-houses, so constructed that they may be used throughout the year.

"I may be permitted to call your attention to the fact that the first of these bath-houses, the so-called Dover Street Bath-House, for which the city expended something like $80,000, was opened in October last. It is furnished with shower baths and a few tubs, but does not contain a pool. During the first full month after it was opened, that is in November, over 15,000 baths were taken, the majority by men. An average of 500 bathers a day in such a district as that served by the Dover Street Bath-House, means a great deal.

"As you know, Mayor Quincy in his address before the American Social Science Association at Saratoga and in subsequent occasions has strongly advocated the provision of baths in our crowded and rapidly growing cities. It is surprising and gratifying that so novel and hitherto "un-American" a line of policy should meet with so much approval. The number of requests preferred by the City Council of Boston for baths, playgrounds and gymnasia in various quarters of the city is remarkable. The field for the advocates of physical education to work in is widening rapidly and is by no means confined to this city. The City of Boston has had out-of-door gymnasia under its Park Commission for several years; very admirable institutions they are, too, in their fittings, locations, etc., but it now has an indoor gymnasium, presented to the city by a benevolent lady a year or two ago. It is located in East Boston. It is used for class instruction and the baths, inadequate as they are, are resorted to by some 1,200 bathers a month.

"One of the most original things achieved through the initiation of Mayor Quincy, was the establishment of a boys' camp for the benefit of the boys in the less favored portions of the city. The camp was maintained from July 18th until September 3d, on one of the islands belonging to the state. The number of boys who enjoyed the privileges of the camp was 831.

"This year the Mayor has been influential in procuring the passage of the bill by the Legislature to authorize the holding of vacation schools. Hitherto school committees have naturally been disinclined to assume the responsibility of maintaining vacation playgrounds and schools. It is worthy of note, however, that in Cambridge, New York City and in Providence in previous years as well as last summer, very considerable and encouraging experiments were made in the line set by Paris and other European cities toward the development of vacation schools.

"Mayor Quincy's interest in these matters is so great that I feel much embarrassment in attempting to speak for him and very greatly regret his inability to be present and speak for himself. It gives me pleasure to assure you of his high appreciation of the objects and aims of our Association."

President's Address.

EDWARD MUSSEY HARTWELL.

In addressing this audience I am mindful that in a sense I speak to two audiences, one composed of members of the A. A. A. P. E., who are familiar with its objects and history, and another and larger audience representative of the public whose sympathy and influence we desire to enlist towards bringing about a more effectual advancement of the cause our Association has at heart.

While it may properly be expected that I should set forth the aims and work, the desires and prospects of the Association, which for the time being I have the honor to represent, it seems to me that my first duty on this occasion is to urge the claims of physical training to be considered and provided for as a necessary and important department in the general education of the rising generation.

My main contention is that physical training lies at the basis of all human training, by virtue of its relation to the organs through which our emotions, thoughts and resolves are expressed in actions, and that therefore it plays, and must play, an appreciable and important part in what are customarily termed mental and moral training.

Laurie, a well-known Scotch writer on education, has put forth a serviceable statement of the modern ideal of education. "By education," he says, "we mean the training of a man with a view to make him all that he can become. * * * The education of a child is the bringing of him up in such a way as to secure that when he is a man he will fulfil his true life,—not merely his life as an industrial worker, not merely his life as a citizen, but his own personal life as a citizen through his work and his citizenship." And he goes on to say that the attainment of the ethical end of education must be considered "from the point of view not only of the growth of mind, but of the growth of body; for we have not to train up a soul," says Montaigne, "nor yet a body, but a man, and we cannot divide him."

A very general definition of physical training that will serve our purpose at this point may be stated as follows:

Physical training is the development by use and wont of the motor powers of the body.

Among the most characteristic manifestations of the modern spirit there are two which have profoundly influenced and continue in an increasing measure to influence the life and institution of our time:

(1) The development of the industrial type of society, one leading phase of which is marked by an unprecedented and well nigh portentous multiplication of great towns and cities; and

(2) The expansion and improvement of the natural sciences, both on their theoretical and practical sides. The lawgiver and the teacher, as well as the laborer and the capitalist, are confronted on every side by problems due to the changed conditions wrought in the community by the irrepressible tendency of men to herd together in great cities. So it is scarcely too much to say that the problems of education are urban problems.

In 1790 the urban population of the United States was only one-thirtieth of the whole; by 1890 it had increased to one-third. In Massachusetts the urban population amounts to nearly two-thirds of the entire population. The city school children of Massachusetts number more than one-half of all the school children of the state. The effects of the unrelieved and uncompensated pressure of population under urban conditions are so deleterious that the responsible managers of the schools in which are found nearly one-quarter of our total population, cannot afford to postpone the adoption of more systematic measures not only to prevent disease, stunted growth, and enfeebled powers, but also to actively promote every hopeful means of securing normal growth in stature, strength and vigor. Experience and reflection amply warrant the demand that systematic physical training should be accorded a prominent place in the programme of the new education.

Ever since the days of Rousseau, who introduced the ideal of the natural man into educational literature, there has been more or less of conscious effort to conform educational theory and practice to the laws of Nature. Thanks to the improvement and development of the natural sciences, and especially those which relate to the kingdom of animate nature, the prospect of realizing the generous ideals of the Naturalist in education grows brighter from decade to decade.

It has been well said by Mr. Huxley, that "It is a peculiarity of the physical sciences that they are independent in proportion as they are imperfect; and it is only as they advance that the bonds which really unite them all become apparent."

Through the advance alluded to by Mr. Huxley, Man's knowledge of himself has been immensely increased, and his conception of Nature and of his place in Nature radically changed. The human mind has been thereby both uplifted and enlarged. Considered simply as a member of the animal kingdom, Man is a much more intelligible and interesting creature than ever before, since so many new and commanding points of view have been established from which his structure and powers, and the laws governing the development and use of his powers, may be studied profitably.

Let us glance at some of the more salient characteristics of the human body from standpoints afforded by those branches of science which throw most light upon its origin, and the laws which determine the growth of its parts and the development of its powers.

I. Viewed from the standpoint of the Physicist, we see that the adult body is a mechanism made up of living matter, the work of the body being to transform potential into active energy. The body is the seat of

(1) An ingoing stream of energy-yielding material consisting of food stuffs and oxygen, and

(2) An outgoing stream of material from which energy has been liberated.

The greater part of the energy liberated in the body takes the form of heat and mechanical work.

II. Viewed from the standpoint of the student of structure, that is, the anatomist, we find that the body is a highly complicated, composite mechanism made up of organs necessary to its life and working as a whole. These component organs of the body, though very numerous, may be summarily characterized as:

(*a*) Organs concerned in transforming and purveying food material;

(*b*) Organs concerned in developing and expending energy. Under this head the most important organs are the executive organs which include the skeletal muscles, and the nervous system which animates and controls those muscles;

(*c*) A series of organs whose office it is to gather up and dispose of the waste material produced in the actively working organs.

In a sense it may be said that the purveyor and scavenger organs exist for the purpose of maintaining and serving the executive organs and we may even go further and say that they exist for the benefit of the brain and nerves which constitute the Organ of Mind.

III. Viewed from the standpoint of the student of Zoölogy we conclude that the human body is the highest term in the whole animal series.

IV. The evolutionist tells us that man has developed from simple and primitive forms and that his most distinctive possession is his neuro-muscular system, which is the most highly specialized to be found in the entire animal series. The brain of man has been built up and wrought out through the accumulated effects of man's life and action during the period of his development out of simpler and less gifted ancestral forms.

V. The student of the life history of individual forms, *i. e.*, the embryologist, tells us that the human organism begins as a single cell, or ovum, and that it passes through the stages of embryo and fœtus before birth and later of infancy, childhood and youth before it attains to structural completeness and full functional capability at the threshold of adult age, *i. e.*, from twenty-three to twenty-five years of age. At every stage of its evolution the human body is the seat of growth, that is, of quantitative increase in its component elements, and of development or qualitative changes which result in increased power of functional performance. The development of power which is heightened by exercise, discipline and education, waits on growth. Growth requires healthful conditions as regards food, air, excretion, exercise and rest; hence it is evident that the health of the growing child and youth is of paramount importance. It is not enough for parents, teachers and school committees to take negative measures so that the child's growth and development shall not be interfered with, but under the conditions of modern life it is necessary that they should take positive measures to secure the normal growth and development of the children committed to their charge.

Growth as a preparation and basis for development must be secured, or arrested and distorted development will result.

The evolutionist and the embryologist tell us also that the order and rate of growth and development differ for different organs and at different stages; for instance, the more general and fundamentally necessary organic systems, such as the alimentary, circulatory and respiratory, come first, while the executive organs, brain, nerves, bones and muscles, attain completeness and maturity later. What is true of the organic systems as a class is true of the neuro-muscular system also, and it is true of the brain and its parts. At birth the brain is about 14 per cent of the body weight, and the skeletal muscles are 23 per cent of the body weight, whereas at maturity the brain and nerves equal but 2.3 per cent of the body weight, while their executive servants, the muscles, equal 43 per cent of the body weight. The brain nearly trebles its weight during the first year of life. In the infant brain the sensory parts are larger and more fully developed; the motor areas develop later. Complete motor power appears not to be possible until the muscles, as well as the brain, have become fully grown at the end of adolescence.

The effects of muscular or rather of neuro-muscular exercise, because we cannot exercise the muscles without exercising also those parts of the nervous system connected with them, are twofold, and it is evident the development and health of the brain depend upon its exercise in conjunction with its muscular terminal organs.

The acquisition of new muscular habits calls for a greater amount of cerebral activity than is the case with habitual, automatic and reflex actions. Through practice the neural portion of the neuro-muscular system becomes more capable of reacting to impressions and stimuli. What has been well learned and practiced is easier of performance.

Physical training economizes mental effort and nervous energy and in its way is a distinct aid to the development of mental power. Neuro-muscular exercise to be of educational value should be intelligently adapted to the age, strength, intelligence, skill and sex of the pupil.

Physical training in this large scientific sense includes the exercise and training of all forms of motor activity that can be learned or improved through guidance and practice; therefore, we find that the laws of physical training apply in the teaching of reading, writing and singing, and the technical drill peculiar to the various crafts, trades and professions, as well as in the acquirements of skill and power in games, gymnastics and athletic sports.

The following may serve as a fuller definition of physical training than that given at the beginning of my remarks, viz., physical training is the regulated practice of some form of muscular exercise under such conditions as serve to promote the health of the organism or to develop and discipline its motor functions either in a general or special way.

The great majority of pupils in the public schools of the country are children, or those who are just entering on the stage of adolescence, and are found in the elementary schools. They enter upon their life work without passing through the higher or technical schools. It is evident, then, that generalized forms of physical training are required for the majority of school children, such forms of physical training, that is, as shall promote health on the one hand and discipline on the other,—forms of physical training, that is to say, which are designed and capable of securing both the hygienic and the educational ends of exercise.

Games, gymnastics and athletics are on theoretical grounds to be considered as the best forms of physical training and experience teaches us that they are. Rough, dangerous, difficult, unduly absorbing and exciting forms of exercise are contra-indicated for childhood and the earlier stages of adolescence, also for second childhood. An intelligent combination of hygienic and educative measures is called for, both in the sensory and motor education of the individual, during the period of bodily growth and development; but as regards physical education during the whole of the first eight and the first half of the second eight years of life, hygienic forms of exercise should predominate, while during the last half of the second eight years and the whole of the third eight, educative forms of exercise should be assigned the leading part,—provided that practically normal growth and sound health have been secured to start with.

Attempts at *tours de force*, trophy winning, and record breaking, which would be ill-judged at an earlier stage, may be profitably encouraged within reasonable limits during adolescence in the case of well-developed and well-trained gymnasts and athletes. Doubtless there are valid objections to be urged against rampant athleticism. Nevertheless, the predilection of collegiate youth for athletic sports and contests may be justified as natural and fitting by the teachings of neurology and psychology, if once it be admitted that the development of mind and character, as well as that of the brain and muscles, is subject to the laws of evolution. The average collegian, if a healthy animal, is apter at expressing himself fully in terms of muscularity than in terms of mentality. Intellectual maturity comes later,—unless arrested development supervenes. It can hardly be considered a misfortune that, in the heyday of youth, the sons of civilized men tend to exhibit in their games something of the hardihood, daring and contentiousness which characterized the principal pursuits of their primitive, beast-hunting, war-making ancestors.

The brain and nervous system, is, then, the field of education of all kinds, of physical education as well as mental and moral. And no system of education is complete or natural that does not provide generously and intelligently for the physical training of the boys and girls subjected to it. It need hardly be said that education is not completely organized, in the sense in which we have considered it, in any American city; but it is the object of this Association to labor for the recognition of the rights of children to inspiration, instruction and guidance in games and gymnastics under conditions conducive to health, recreation and wise discipline. As set forth in Section I of our Constitution, "the objects of this Association are to awaken a wider and more intelligent interest in Physical Education; to acquire and disseminate knowledge concerning it; and to labor for the improvement and extension of gymnastics, games, and athletic pastimes in the education of children and youth."

The obstacles to the speedy and full realization of our aims are neither few nor slight. Among them we may mention:

(1) The effects of the disheartening failures of the earlier attempts made in this country to promote rational physical training, as for instance, in the period 1825-1830, and again under what may be termed the Dio Lewis dispensation;

(2) The necessity of competing on unequal terms with other schemes of educational reform;

(3)The indifference, apathy and parsimony of school authorities; and

(4) The vague and diverse aims and uncritical and ignorant methods of many advocates and exponents of physical education.

On the other hand we have many reasons for hoping that the progress of physical training will be greater in this country during the next ten years than in any previous decade of our history. Grounds for such hope may be found in:

(1) The growing appreciation on the part of the general public, as well as on the part of the medical and teaching professions, of the present comparative neglect of school hygiene and physical education ;

(2) The spread of more adequate and rational views with regard to the value and limitations of athletic contests;

(3) The steady increase of gymnasia and playgrounds;

(4) The increase in the number and efficiency of the schools devoted to the professional training of teachers of physical education;

(5) The demand on the part of educational authorities for better methods and more considerable results in the conduct and control of physical education in schools and colleges;

(6) The enhanced activity and success of the North American Gymnastic Union and the Y. M. C. A.; and last, but not least,

(7) The gratifying growth of the A. A. A. P. E.

Viewed in the light of the modern doctrine of the human body, the office of the teacher of youth, be he a teacher of morals, of literature, or of gymnastics, possesses a new and heightened significance. Though education as at present organized is largely traditional in its aims and mechanical in its methods, there is increasing reason to hope that it will be transformed by the modern spirit till it shall become a science based upon the science of human nature, and shall cease to be an empiric art, mainly shaped and ruled to accord with the dreams of speculative thinkers, the precepts of priestcraft, and the maxims of the market and the caucus.

The problems of education are mainly problems of evolution, problems concerning growth and development. The new education will be conceived and ordered as a biological science—as the quintessential of the biological sciences. Then will the teacher strive to play the part of an intelligent, loyal, efficient co-worker with Nature in so shaping and ordering nurture that the child shall develop naturally and fully into a healthy, vigorous, intelligent, active, God-fearing citizen of the world.

Our ideal, the modern ideal, is the civic ideal of education—which is akin to that of Chrysostom who said, "A city without pious citizens is to me meaner than any village, more ignoble than any cave."

Adjourned.

THURSDAY MORNING, APRIL 6.

Minutes of the Secretary read and approved.

It was voted that the Convention extend its congratulations to Dr. E. Hitchcock, acting president of Amherst College, and regrets for his absence.

REPORT OF COMMITTEE ON FINANCE.

MR. CHRISTIAN EBERHARD, TREASURER, FOR COMMITTEE,

JULY 1, 1895, TO JANUARY 1, 1899.

July 1st to December 31st, 1895:		
Received from former Treasurer, Dr. Ehinger	$267.25	
From other sources, dues, reports, etc	27.65	
	294.90	
Paid during same time		$44.46
Balance on hand December 31, 1895		250.44
January 1st to December 31st, 1896:		
Balance on hand	250.44	
Received during the year for dues, reports, etc.	403.00	
	653.44	

Expenditures during year, including payment of $255.20 for Report of Convention of 1895		522.93
Balance on hand December 31		130.51
Deficit (surplus of expenditures over receipts) for the year	119.93	
January 1st to December 31st, 1897:		
Balance on hand	130.51	
Receipts during year for dues, reports, Reviews, etc.	795.56	
	926.07	
Expenditures during year (including payment for Vol. I of the Review, and for the March, June and Sept. Nos. of the Vol. for 1897)		851.32
Balance on hand December 31, 1897		74.75
Deficit for year	55.76	
January 1st to December 31st, 1898:		
Balance on hand	74.75	
Receipts during the year for dues, reports, Reviews, reprints, etc	860.49	
	935.24	
Expenditures during year (including payment for the Dec., '97, March, June and Sept. Reviews for 1898)		647.51
Balance on hand December 31, 1898		287.73
Surplus for year		212.98

REPORT OF COMMITTEE ON CONSTITUTION.

Dr. J. W. Seaver, Chairman.

"As a preliminary I want to call your attention to Section 11 of page 14 of the Constitution: 'These Statutes, as also the General Constitution and By-Laws, may be amended or altered by a two-thirds vote of the National Convention.' This shows you our authority to act on certain changes to be proposed.

"The Committee is unanimous in the feeling that we should make as few changes in our organic law as is consistent with the welfare of the Association.

"We therefore beg leave to report unfavorably upon the resolutions offered by the New York Society through its delegates, because we feel that it is an unnecessary limitation of the duties, or field of work, of the various committees. We say, while they may possibly overlap each other in their work, yet the Association does not suffer thereby, and if there is any question as to the particular field that may be cultivated by any one of these committees they can easily confer with the committee on whose grounds they fear they may trench. So, rather than make narrower the fields of the committees, we prefer to keep them as broad as possible and we think it inadvisable to change our organic law in this respect."

The New York resolution was tabled.

Dr. Seaver: "The Committee on Constitution begs leave to call your attention to the following changes we suggest in our Constitution and By-Laws. If you will refer to Article III, Section 1, page 7 of the pamphlet, it reads as follows: 'The membership of the societies belonging to this Association shall consist of Active, Associate and Honorary Members.' We recommend that the word 'Associate' be crossed out, as has virtually been done by the Council. We also recommend that Section 3 of Article III. be striken out. Section 5 will also pass away for the same reason. Section 6 has the word 'Associate' dropped out so that it shall read: 'Active Members shall be proposed in open meeting of the Society, and be elected by a two-thirds vote of the members present,' etc.

"These changes we have given are all dependent upon the dropping of that one word, 'Associate,' and in adopting them we clear up that part of our Constitution.

"In Article VII. of page 8, we drop the word 'Associate' in Section 1, to read: 'One dollar shall be due at the annual meeting from each Active Member.' "

The above changes were formally voted.

Dr. Seaver: "If you will turn to Article IX. of page 9, it now reads: 'All alterations or amendments to the Constitution of any society must be presented in writing, lie over for one meeting, be advertised in the notice of that meeting, then adopted by a two-thirds vote of the members present, and be ratified by the National Council.'

"Now obviously there is a mistake, for we have no provision except in our By-Laws for changes in Constitution. I propose we change the statement to the following: 'All alterations or amendments to the Constitution *of this Association* must be presented in writing, lie over for one meeting, be advertised in the notice of that meeting, and then adopted by a two-thirds vote.' This is somewhat complex, but it puts an obstacle in the way of tampering with our Constitution; it gives flexibility enough for any important changes. "

This was tabled after discussion.

Dr. Seaver: "On page 11 of the By-Laws after Section 7 on Headquarters of Districts, we wish to insert a new law. This will carry the numbering of the paragraphs along so that number 8 will be 9, etc. Just before this section we have stated the grand mechanism of our organization which is most elaborate and complete and far-reaching. It starts with the idea that the National Convention, the national organization, shall be divided into sections, and we have the ten different sections named. Then each section is to be divided into districts, these districts to be divided into local societies which constitute the unit of our organization. Our National Convention is today a convention of societies rather than of individuals, and the by-law is to broaden this out and go one step lower until we are more ripe and highly developed than we are today as an organization. This article we propose to insert, is as follows:

"8. 'Until this organization of sections, districts and societies is complete, each member of the Association shall have an equal voice in the deliberation of this Association, except in matters pertaining to the location of the place of the next meeting and changes in the Constitution, which shall be in the hands of delegates.'

"This leaves the general management of the business of our Convention in the hands of the members, not in the hands of delegates as it virtually is today, it being a Convention of delegates, according to our Council. This is making it a Convention of National Association members. It seems wise to do that on account of the failure to get a highly organized system of societies; I have no doubt the time will come when we shall be able to live up to the organic law, and we were not in favor of changing it, but until that time comes we believe there should be more freedom on the part of members attending the Convention, who are not in the position of delegates."

Dr. Channing: "I am glad to stand up and say what I think about the proposed changes. I think it is a question of whether we may not be going from the frying pan into the fire, and I am rather in favor of continuing in the frying pan until we are sure of our ground.

" The Constitution is a very cumbersome mechanism, and the one who was more or less responsible for it, unfortunately, is not at hand and cannot be on hand much to help us out. It is my feeling that we had better let it practically alone. I believe in the change already suggested in regard to active membership because it is impossible, as the Association is now organized, to make any distinction between active and associate members, but I don't feel any further change at the present time is wise. I think we had better continue along as we are. I am happy to come in to a meeting, and under proper conditions, say something, but I do think it is a pity for us to spend so much time upon the consideration of simple business, and I think the affairs of the Association can safely be left to the delegates. I am in favor of leaving the Constitution very much as it is at present. In time it will be modified, but there is no hurry about it."

Dr. Sargent: "I am inclined to leave this question to the Chairman of the Committee. If I remember rightly, the Association was broken up into smaller societies for the purpose of giving them an opportunity to get together and talk on these important subjects. In my opinion, there is nothing more valuable than that. You have got to fight your way in the world; you have got to make a place in the curriculum of education. In order to do that you should have opportunity to meet frequently and discuss matters at short range. We have seen the result of this method in the exhibition of forensic ability shown here by members of the local societies whom I know to have developed something of this power in meeting the minor questions coming up in their meetings. Now I consider this matter of the utmost importance to our cause. As one speaker has said, delegates representing ten votes ought not to be voted down by members representing one. If I have ten shares in a corporation and another individual has one share, I don't want my ten to be pushed down by that one shareholder's vote. One thing can be done, viz., reduce the number of delegates."

"I know there is a wide difference of opinion in some of the local societies. But we ought not to bring local squabbles into the National Association. It seems to me that one of the chief values of these local societies is the opportunity afforded to discuss these vital topics at close range. I think one of the objections that occurred to us in the management of the old society was the fact that it had grown so large and was represented by so many persons who were not interested except in a general way, that individual members were afraid to speak, and we could not get down to vital issues. Now the local societies have got down to vital issues. You see the results. Members have come here with well digested information and have expressed their views admirably. Now it seems to me since the result of our local society work has shown up so favorably, even though the instances are few, we ought not to change our method without further trial. We have undoubtedly labored under great disadvantage during this meeting. Our machinery was cumbersome and new, and we did not know how to use it. Our Constitution was taken more or less from the German and it would take the metaphysical mind of a German to unravel some of its perplexities, and unfortunately we have not our President here to interpret it for us."

Dr. Gulick: "This Constitution has not come to us by evolution; it was a creation that was thought to meet the situation. It has not met the situation. There are some significant signs in the air. There are but three or four College Physical Directors with us today. They have their national society where their technical problems are discussed as they cannot be treated by this body. There is an annual meeting of the North American Gymnastic Union, where their technical problems are handled. This could not be done before our body. The Young Men's Christian Association physical directors have their annual conference, eight days to two weeks, where their problems are treated.

"Now is it not significant that this A. A. A. P. E. meeting is made up with but little representation from these three groups? I understand that two groups have been formed at this conference—one among the supervisors of physical training in public schools; the other among the physical directors of women's college gymnasiums. These five segregated groups should eventually come into some organic relation with this body. The North American Gymnastic Union has led the way at this meeting by sending one who has been accepted as official delegate. If the North American Gymnastic Union is doing new work in practice or theory, as it undoubtedly is, let them regularly give us the results of their discussions through this delegate. Our Y. M. C. A. Conferences since 1892 have done important work. You would be interested to know of our work from the psychological standpoint on the physical training of boys and adolescents. The College Physical Directors have done important work. Let us hear from them. But few of us care, however, to hear lengthy debates on business. Necessary though they be, they are disassociated from the fundamental, scientific purposes for which we live. We must, I believe, go on as we are at present organized for a little while. Some time a change will be made. Our present form of society organization provides for those who are in geographical contiguity. A more fundamental division is by interests. We shall some day be organized as is the American Science Association."

After additional discussion it was voted to table the resolution.

REPORT OF THE TECHNICAL COMMITTEE.

Dr. Sargent: "As Chairman of the Technical Committee, I will give you a brief explanation of the committee's work. We have promised to show you the positions that we concluded we could safely adopt. It does not seem to me that it is necessary to go into any extended argument as to the necessity of our coming to some understanding about these terms. This is no pet scheme; we have used Dr. Anderson's book, but that does not mean that Dr. Anderson's Terminology has been adopted, as we have drawn largely from the German, Swedish and other sources. The committee have worked the matter out in detail and are prepared to show you certain positions. These positions are not passed upon definitively, they can be revised at any time, but they are something to start with and I hope eventually the Y. M. C. A., the Turners, etc., will coöperate with us. I cannot remain with the Committee; the other members will present the positions to you and tell you what has been agreed upon. The disposition of the committee's work is a matter for you to decide upon."

The Report of the Technical Committee was continued by Mr. Eberhard and the positions were illustrated by Mr. Dohs.*

After considerable discussion and the presentation of a minority report by Dr. Enebuske, the whole matter was referred back to the committee for further consideration and report.

COMMITTEE ON PLACE OF NEXT CONVENTION.

Mr. Hillyer: "It is my duty to make a report of the Committee of Three appointed yesterday to decide upon the next place for holding the Convention, the national headquarters until the next Convention, etc. That committee rather transcended its powers because the committee directed its chairman to make two or three recommendations or suggestions to the Convention. In the first place the committee recommend that the headquarters remain in Boston for the next period, that the National Council shall be elected by the Boston Society, that the next Convention shall be held in New York, that the next Convention shall be held two years from now, not more; that at the next Convention the national headquarters must change, that the Corresponding Secretary of the Association should be honored by some slight compensation, not for his services, but according to the Constitution he is entitled to a salary, and for several years has given time and energy very generously to the REVIEW and has made the REVIEW what it is. After consultation with the Treasurer it was deemed feasible to recommend that the sum of one hundred dollars be given to the Corresponding Secretary as an honorarium. That will await the instruction of the incoming National Council, but as the Convention makes that recommendation, there is no doubt the Council will act upon it."

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*The report cannot now be published. It is hoped that the committee will take steps to have the positions illustrated for publication in some future issue of the REVIEW.—ED.

Voted to accept the report and adopt the suggestions.

COMMITTEE ON RESOLUTIONS.

Dr. Gulick: "*Resolved*, That our cordial thanks be extended to the National Council of this Society for its faithful, self-sacrificing effort during the past four years and during the Convention, and that we especially compliment the Society upon the AMERICAN PHYSICAL EDUCATION REVIEW, for we believe that its influence is of primary importance in the suitable recognition and advancement of our cause.

"Also that our thanks be extended to the authorities and the many persons who have by individual and official effort contributed to the success of this Convention, especially to the authorities to whose courtesy we are indebted for the use of this building, the Fogg Art Museum, and the Radcliffe and Hemenway Gymnasiums.

"We also thank the officers of the Convention for their faithful service, and recommend that the Corresponding Secretary be instructed to send formal acknowledgment to each."

The above resolutions were adopted.

Meeting adjourned.

Thursday Afternoon, April 6.

A public meeting was held at the Fogg Art Museum of Harvard University, Cambridge, at 3 P. M., at which President Eliot, Dr. Sargent, Dr. Seaver, Dr. Porter, Professor James and Professor Hollis spoke on the question :

"What measures are best calculated to secure a dignified and influential place for Physical Training in the Educational Curriculum?"

Dr. E. M. Hartwell, Chairman: "I regret that the time has arrived for the last of the meetings on the programme of the First

National Convention of the A. A. A. P. E.; but the Association is to be congratulated on the place and circumstances of this meeting. Certainly, it is a privilege for us to meet here in Cambridge where so much has been done for the promotion of the cause of physical education. We cannot forget the debt of gratitude we owe to Harvard University for the influence it has exerted in our branch of education during the last twenty years. After all is said and done, although the interests of physical education in the lower schools are in some respects of paramount importance, yet it is to the institutions of superior education, the colleges and universities, that we naturally and gratefully look for inspiration and guidance.

"Nearly forty years ago, in 1860, Amherst College established a department of physical training. Dr. Edward Hitchcock is the honored head of that department, as he has been for more than a generation. Dr. Hitchcock was the first president of this Association; he is a member of its National Council; and he would be with us today to take part in our proceedings were he well enough to attend."

The first paper of the afternoon was by Dr. D. A. Sargent, Director of the Hemenway Gymnasium, Harvard University.*

DR. W. T. PORTER.

Harvard Medical School:

"The purpose of the meeting this afternoon is to determine how the work of the physical educator can be made most interesting to the general public—how it may be made to justify itself. In the first place, physical training is beyond question a part of education itself. Undoubtedly the poise—the ability to meet emergencies—which comes from well-directed physical training is a valuable part of what we term education. Secondly, there is a purely scientific end to be gained, one of the richest which investigators can ever reach. Finally, physical education justifies itself by its relation to the new medicine—the preventive medicine, not the doctoring of sick people—that is a matter the doctors themselves can attend to—but the wise prevention, the care, the systematic oversight which shall prevent the fastening of disease upon bodies weakened by improper living. It is difficult to say which of these three sides of physical training is most valuable.

"I will not speak of the educational side, but I wish to say a few words on the scientific side and on the duty of physical trainers towards preventive medicine. The investigator of scientific problems cannot look on physical education as it now stands without some feeling of envy, for it is certain that this field offers a rich harvest.

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*Dr. Sargent's paper will be published in a later issue of the Review.—Ed.

"The problems which present themselves can be attacked in two ways. In the first place I should like to point out that the material for physical education consists of measurements. It consists in tables which shall show the proper proportions of the human body at successive ages, thus giving the rate of growth, a matter of first importance in dealing with growing children. All the material which has yet been collected in this direction shows only the development of the average. We know now with a fair degree of accuracy the average weight of a boy of 16 or a girl of 15, and also the average height, but we do not know with certainty the rate of growth in two successive years. We know that the statistical child, the average child, grows a certain number of inches or fractions of an inch from one year to another, but we don't know what the individual does, and it is the individual with which we are first concerned. Of two children, John and James, weighing respectively 60 and 50 pounds, the average weight is 55 pounds. If in the next year John has gained 10 pounds and James has lost 10 pounds, the average is the same, but the effects on the individuals are striking. The one losing weight would be ill, the other would be developing normally at the proper rate. That is the difference between the individual and the average, and it cannot be too strongly insisted that what we now have are figures which do not enable us to say with sufficient certainty that a child is not growing properly. That information could be had, however. We could have much of the necessary data in from five to ten years. It requires only that members of the Association should make measurements of the same children from year to year. The rate of growth of the individual would be thus made known.

"The use of physical training in preventive medicine depends in large degree upon our knowledge of the normal rate of growth of the individual. With this information, it would be easy to separate from the mass of children in the schools those not developing in the normal way. The defective children could then be examined by a medical expert and steps taken to remove the cause of their imperfect development. Even in the absence of exact knowledge concerning the growth of the individual aid may still be given, though in a far less satisfactory way. We know already the rate of growth of the average. How shall we bring this knowledge to bear practically on the work done in the schools?

"Dr. Sargent has stated in his interesting and valuable address that in Russia, our own country, and in England, children who succeed in school work,—who are further advanced in school than other children of the same age and sex,—have been found to be taller and heavier than their companions of equal age. The pupils in every large school are divided necessarily into groups or grades. The average weight to height ratio of each group represents the physical development usually associated with the capacity to do the work of that group. In each group will be found, along with those who are near the average, certain children who are precocious in the pathological sense—whose early maturity is a defect—and certain others who are unduly ambitious, who are working at a rate which cannot be maintained without injury. Such pupils are especially numerous in the most difficult period in school life, namely the three years of accelerated growth from 13 to 16. It would be easy to put year by year the children whose ratio of weight to height is less than the normal under medical supervision, and thus remedy so far as possible, the conditions preventing their proper growth.

"Laymen as well as medical men know that abnormal physical development is itself a disease. Witness the practice of insurance companies. Men who are too tall for their weight cannot get their lives insured. The matter is even more important in the case of children. The establishment of a standard of growth would enable physical trainers to point out many grave cases of yet latent disease. Even slight illness will send the growth curve down. Some of the most formidable diseases with which we have to deal are ushered in by progressive loss of weight, or by a failure to gain at the proper rate. Thus, in tuberculosis one of the most significant symptoms is a continuous loss of weight; anæmia and rickets are other examples. The failure of a child to gain weight should at once cause questions to be asked of the medical adviser. Systematic measurements have been employed for years in precisely this way, and with the best results. But at present their use is limited to very young children. When a Boston Back Bay baby fails to gain five ounces a week, the doctor is sent for. Experience shows that the failure to grow at this rate is a tolerably certain index of commencing disease. Doctors no longer wait until the illness is unmasked. The extension of this principle opens an immense field to the physical trainer.

"Surely, in education, in pure science, and in preventive medicine, the opportunity presented here is as great as in any other field of intellectual effort."

PROFESSOR WILLIAM JAMES,

Harvard University:

"I was only yesterday reading the life of a spiritual hero of the 14th century and I came across this sentence which he had written on the wall of his cell (he was, by the way, a great ascetic who once made a vow to pass three years without washing himself, which vow he kept). The sentence on the wall was, 'A pale face, a wasted body and a lowly demeanor are the marks by which a spiritual man may be known.' We have gotten well away from that belief as abstractly expressed, but in the concrete, I am not sure that we have got so far away, after all.

"When it was proposed last year that this university should make physical training obligatory in the freshman class, the motion was voted down by a large majority in the Faculty, so the fight must still go on here as elsewhere until it is recognized that physical training is the general basis which underlies every trait of character and the great harmonizer and equalizer and bringer-up of the individual to the normal mixture of facilities which he is expected to possess.

"Dr. Sargent might have added to the statistics which he quoted in favor of the physical and mental results going together, some statistics published by Professor Venn. He took, I think, a thousand Cambridge students, sorted into three classes according to their rank in scholarship. He then tested each of these men by physical tests, such as height, hand-grasp, acuteness of vision, breathing capacity, etc. He found, of course, that there were exceptions; the law came out with great prominence, that a man who was superior in any one of these respects was likely to be superior in others. On the whole, the higher scholars were the physically better men.

"Dr. Sargent spoke of our muscles forming 45 per cent of the weight of the body, but it is pretty well understood now that the result of physical training is to train the nervous centres more than the muscles. At Yale lately, they have found that exercising one arm in certain ways renders the other arm stronger. This can only come from stronger innervation. In training the nerve-centres you train in all sorts of indirect ways that we cannot trace out; you train the entire psycho-physical organization. Until lately inquirers into the causes of insanity used to think the way to investigate the difference between the brain of an insane and a sane man must be by the microscope, exclusively. Nowadays the notion is becoming familiar that the microscope may never reveal the cause of such mental differences as that between melancholy, or mania, and health. It seems more and more likely that these differences are due to the 'concoction of the humors,' to poisonous products generated in the sick person's body. Mental disease is, in short, an auto-intoxication, its causes are chemical, not structural. Everyone knows the effect of physical exercise on the mood: how much more cheerful and courageous one feels when the body has been toned up, than when it is 'run down.' The nervous system and the muscles need exercise in order that their vital metamorphoses shall contribute to the normal chemical composition of the blood that bathes the brain. Bad metabolism means wrong mental states. As a student of psychology, as a member of our philosophical department, I feel the greatest interest in the physical culture of all our students. I know that we shall thereby get sounder views, we shall get truer interests, we shall get less eccentric influences of philosophy upon life. Unwholesome broodings over mysteries, pessimistic tendencies, etc., which are supposed to be the fruits of a spiritual life too ardently cultivated, would often disappear if the bodily equilibrium were made right.

"I hardly know what more you expect me to say, from the psychological point of view. From that point of view our inner moods are determined by the feelings which come up from our body. Those feelings are sometimes of worry, breathlessness, anxiety, tension; sometimes of peace and repose. It is certain that physical exercises will tend to train the body towards the latter feelings. The latter feelings are certainly an essential ingredient in all perfect human character. I think, therefore, that we who feel the truth of these things, should work to have them recognized all over the land in the education of youth. Youth is the important time. Habits started in adolescence will persist and a tone once given to the character, to the habitual moods of the individual, may after the age of 25 fairly be trusted to take care of itself."

PROFESSOR IRA N. HOLLIS.

Harvard University:

"It would be impossible for me to tell you the feeling of the Harvard Faculty upon the subject of physical training. When I was requested to speak upon this subject it was with the understanding that I should represent the opposition. As I am a believer in physical training for all students, I will say only a few words on the objections to making physical training a part of the prescribed system of education at Harvard.

"There is hardly any difference of opinion in our faculty, or any other faculty, as to the value of physical training if sanely conducted. We all believe that well developed bodies are to be preferred to deformities, and a body that has been well developed by proper physical education will no doubt endow the possessor with better mental power. The question as to what the physical education shall be, is another problem.

"I think one of the chief difficulties with physical education today is that it has not been made attractive enough. It seems to me that nothing can be more monotonous, more dulling to the mind, than pulling chest weights or working dumb bells day after day without a sufficient variety of out-door exercises. The plan which Dr. Sargent has mapped out here is a good one in that it provides a great variety of exercises, and is practically an elective system from which may be chosen what is most to the liking of the student. When it comes to the question of prescribing this subject for young men who are going through a college where almost all subjects are elective, we naturally find great opposition. Young men coming to Harvard have a right to select from the elective pamphlet any subjects they are able to take. Would it be wise to add to this election a requirement of a certain amount of work in the gymnasium? The main claim for prescription, of course, is that the education of the mind is one thing and that the education and training of the body is another thing, and that we may well require a certain amount of work in both, permitting students to elect from the programme which Dr. Sargent has proposed.

"One of the chief difficulties as to prescription is the enforcement. How can we compel a student to take a course of physical training? We may advise him to take it just as we advise him to take Mathematics or Greek; but shall we compel him to take it? The only method of compelling is by withholding the degree or by suspending the student from college. In other words, a young man with a weakly body shall not be permitted to obtain an education unless he is also willing to build up his physical system. There would certainly have to be exceptions to a prescription, and I hardly think that any faculty would deny a young man his education or his degree because he had not had a certain amount of physical training. This is probably the position of our faculty today, if I understand it.

"The whole tendency of modern civilization is to bring the standard of mankind up by educating everybody, even those with sickly bodies. Of course, the system of physical training proposed is designed to make sickly bodies stronger. At the same time there is a feeling that we must never deny a man a degree by reason of the fact that he lacks physique.

"There is another point in connection with this which seems to me of importance, and that is, how are we to control the lives of students outside of the hours of physical training? The proposition, as I have heard it in connection with other universities, contemplates three hours a week in the gymnasium, or three hours a week in the field. Now when a young man spends three hours a week in the gymnasium or three hours a week in the field and fifteen hours a week in the billiard room, physical training has comparatively little benefit, and therefore the notion which seems to be prevalent in this section that regular hours of study, regular meals and regular sleep would be of far greater importance than a system of physical training, is sound. Six hours a week of exercise would not be of any value to a man who is going to bed at twelve and one o'clock; it strikes me it would do him a positive harm. From my own experience, I may say that I have seen a system of physical training which was a perfectly natural one in the school at Annapolis. We had very little gymnasium work; a certain amount of boxing, a little fencing and some dancing. Besides these, our exercises were almost all out-of-doors, with the howitzer or in the ordinary infantry drill. The system speaks for itself; there is comparatively little sickness at the naval academy. The hours are perfectly regular. It may be that such a system would be impossible in a modern university, and it is a fair question as to whether three hours a week in the gymnasium and some lectures in physical training would not incline our young men to be more regular; would not teach them from the start, especially if this course was taken in the Freshman class, the great value of taking care of the body. There is an opinion amongst some that it would.

"There is another method of introducing an athletic system, and that is by making the course elective, so that a student might come into the university and elect a certain course in physical training and count it towards his degree of A.B. or S.B. That puts the course on simply the same basis as any other elective course, and it does not strike at the root of the matter. If physical training is to have the great value which it is said to have, every student should take it. By making it an elective we do not reach those young men who are inclined to remain in their rooms and burn midnight oil over their studies, nor those young men who are inclined to go into Boston and neglect their studies. We should reach perhaps three-fourths of the students. I think, Mr. President, we all have a hope that by improving the courses in physical training, by increasing their attractiveness, students will naturally take an interest in them, and that we may induce them voluntarily to take proper care of themselves.

"I look upon the field sports of today as more or less a reaction from the old system of the grind, the old idea that a man made himself complete by studying all the time. At the same time it is a question whether out-door sports quite fulfill our expectations."

THE ATHLETIC TRAINER.

DR. JAY W. SEAVER,

Yale University :

The growth of interest in athletics in this country during the last twenty years has been truly phenomenal. There were contests in rowing during the fifties between crews representing, more or less completely, colleges, rowing clubs, and private combinations of strength and skill, but it was only in the later seventies that crowds came to witness aquatic contests and the managers of railroads and steamboats became the most interested parties, if not partisans.

During the sixties, base-ball began to take its place among the popular games of young men, but it was as late as the spring of 1880, when Yale had learned many a sad lesson by defeat on the diamond, that she put a team into systematic training and practice for the games of the season. Foot-ball as a public game dates back only to '72, and as late as '78 the game was not self-supporting, although the Rugby game was introduced as the intercollegiate standard in '76. Track athletics were introduced in many colleges in the early seventies, but no effort was made to prepare for the contests by special training until '76, when the Mott Haven cup, valued at $500, was presented to the intercollegiate Association. For nearly ten years the actual preparation for these contests consisted of such restrictions in diet as the individual might choose to impose on himself, and such preliminary exercises as he might select. There were certain vague ideas among the students about what food was good or bad "for the wind" and what exercises most helped in developing speed, etc., but these ideas were mostly derived from the English pugilistic circle, and so far as they were strictly observed probably did harm. I have vivid recollections of an intense thirst that prevented sound sleep at night and produced great discomfort during the day, and undoubtedly unfitted me for my best effort in a race, and that was endured only because water was not only "fattening" but was "bad for the wind." The moral effects of such training may have been good, but the physical dangers of it make me shudder.

To mark the contrast in the popularity of all intercollegiate athletic contests I need only quote from the recently published report of the manager of the Yale Foot-ball Team for the season of '98.

Receipts of Yale-Harvard game, November 19th:		
Admission tickets sold		$34,342.00
Total expenditures		3,791.80
Net receipts		$30,550.20
Yale-Princeton game, November 12th:		
Total receipts	$24,944.00	
Total expenses	4,482.57	
Net receipts		20,461.43
		2)51,011.63
Yale's share		$25,505.81

At least 30,000 people paid for witnessing these two games in which eleven men from each University contended. A like interest in each form of athletics has been shown by the vast throngs that attend the contests or patiently try to decide "how it happened" by reading the daily paper. This popular enthusiasm over the intercollegiate games is only a reflex of the feeling within the college walls, where for a part of the time a set of young men are carried to an extreme of zeal and ardor that may be said to overwhelm for the time every other sentiment. The feeling pervades everybody that the honor and good name of the institution as well as of the men themselves is to be tried, and determined by the outcome of the game.

The pressure that has thus been brought to bear on the contestants is tremendous and can be fully appreciated only by those who see the inside of student life. The captain or member of a successful team is a deity—can do no wrong—makes no mistakes—and presides over a community that assumes to itself the same qualities of supreme excellence: but the losers are the debased of the earth, the scapegoats on whom are laid all the sins of the community; criticism, both deserved and undeserved, is heaped upon them and "none so poor to do them reverence."

To meet this pressure and prepare for the severity of the contest we have had one of the most noteworthy and anomalous developments, both social and physical, of college life—the so-called "trainer," who was at first supposed to have merely a function of getting the athlete into as good physical condition as possible, but who now acts principally as a buffer between the athlete and the world at large, bearing a large part of the honor if the athlete is successful, and a little of the blame and losing his position if the athlete is defeated. Let us consider for a few moments the genesis of the athletic trainer as he is often found in our colleges, then consider his preparation for the work he undertakes and finally inquire if the time is not ripe for a more intelligent direction of college men in their games.

When the idea of intercollegiate athletic contests became a settled purpose in the leading colleges there was no scientific appreciation of the needs established by the new demands on the physical strength of college men. It came at a time when gymnasiums were either poorly equipped with trained teachers or had none at all. The previous conception of what was required in a teacher of gymnastics was summed up in the word acrobat. Probably only one college in the country previous to 1880 had fully decided that it was for the best interests of all concerned to employ a highly educated person intellectually to supervise and direct the physical education of its pupils. That College was Amherst. The fact that the trained physician—the only person who had any adequate knowledge of the human body—could earn more in general practice than in directing, a gymnasium, and that his social position would be much better, had left the field free to professional or semi-professional acrobats and pugilists. They had for years inculcated the ideas of the prize ring and turf, and when a new phase of athletic life came up it was but natural that they should dominate its methods and direct its energies. There were no persons trained to efficiently direct athletics in a scientific way, and therefore oracular jackeys of decayed pugilists became the trusted advisers of college men. They were, in many cases, being crowded out of gymnasiums by the better trained set of directors that responded to the demand for a higher estimate of the responsibilities involved in caring for the physical development of students. In some cases they were the products of foreign professional life, and their only passport to the direction of college athletic life in America was the choice vocabulary of professional sporting slang that they possessed, and that fell upon our uncomprehending ears with a mystical force that seemed to endow the speaker with the power of a mascot. For a year at least, Yale men were divided as to whether they should attribute their athletic success to "Bobby," the English trainer, or to "Handsome Dan," the celebrated bull pup. I believe they finally agreed that "Handsome Dan" deserved more of the credit, and I, at least, want to be counted with those who think so. That nearly every college has followed some similar fetish is proved by the "Princeton Pickaninny" and the choice assortment of dogs, goats, colored gentry, et cetera, that have done duty for Harvard. As to the preparation that has been deemed sufficient to enable one to hold the position of athletic trainer in some of our best educational institutions, I beg leave to present the following facts: In 1892 I received a letter from a man who stated that he had just been appointed athletic trainer in a certain university and would like to do some reading so as to be better posted on the theoretical side of the subject. He did not think much of theory—was a practical fellow, but he wanted to do things about as we did them at Yale, and he had been told that I had written a book on examining students which he would like to read if I advised it, and, in fact, he would read anything I said, etc. He evidently didn't know me, for I advised him to begin with Gray's Anatomy and told him my book would not be worth reading (many of you would have told him the same) until he had mastered two or three books like Gray. This man held his position and drew his salary for two years.

I visited a certain college about eight years ago and found the athletic trainer in charge of the gymnasium during the vacation. He was greatly pleased to see me and told me all about himself, his method, his success, etc., and " all went merry as a marriage bell" until he told me about his giving digitalis to his runners, and then I broke in with a somewhat vigorous protest against his use of one of the most virulent drugs in the pharmacopœia. Unabashed he replied, "Oh, I'm onto you doctors! That's what you give when you want the heart to do more work, and heart work is what a runner needs. Now if I could find out what you give in asthma to make a man breathe easy, I'd have a combination that would beat the world." I told him if he ever gave another drop of medicine to a student I would have him kicked out of the college, for I knew several of the faculty well and could execute my threat. I did put one of the authorities on the watch, and for a period of about three years he dropped prescription of medicine as one of his fine arts. Think of the educated parents of college boys trusting their offspring to such pernicious meddling! Think of the mental hebetude of a college management that would hire such a man to train their pupils—for this man was hired and paid by the same authority that hired and paid the teacher of Greek. I looked up the history of this man out of curiosity, and to make my ability to control him more complete. He was born in New England, and as a boy excelled in running—could outrun any of the boys in his city and had won several prizes in foot races—had never learned a trade, but finally became connected with the street railway service in a New England city—"his health being too poor to allow the confinement of a trade." His health was "poor because of a heart trouble," which I pronounced to be mitral insufficiency with compensatory hypertrophy, as I examined him at one time at his request. Here was the clew to his idea of digitalis, for he had probably taken it himself with benefit after he had injured his heart. He "had always been around athletes more or less and took to them" and he "studied their fine points until he could tell their needs." Then he trained one of the students of this college for a race which he won, and to use his expressive phrase: "that gave me my place." The elevation of a man from cabin to Whitehouse is not more remarkable, if accomplished by more clearly defined steps of progression, than that of this man from native turf to the college via the street car service. The greatest mistake was that he was not made President of the College instead of the athletic trainer. A third sample (and here you must pardon me for revealing skeletons that hang in our own closets) of a choice job lot of typical trainers from abroad was hired by the Athletic Association of one of our larger Universities some two years ago. He wore a foreign built cap and large check clothes that would have indicated his origin if he had assorted his h's carefully and applied them to the proper words. He had, so he said, ridden for Lord D. in many of the great races, but he "preferred to put his money on men as it was surer" and he thereby "came to study men until he knew a good one." Then he came to this country and—well, *we* finally got acquainted with him and "knew a good one." Others undoubtedly had known him before, but we had no introduction and we found him out only slowly. He brought out a winning team the first year he was with the University, and the papers called him "the greatest trainer in America." Some of you have noted the number of "greatest trainers" that there were in the country at the close of the last foot-ball season (and none of them were at Yale). The popularity of the man was such that his immorality was winked at by good men on the team and on the committee. He was known to be not only immoral himself but to be advising immoral practices for the young men in training. The next year his team was a badly defeated one and an avalanche of obloquy descended upon him, sweeping him into solitude. Without spending more time on specific illustrations, let me say that there are good men in the work who act for the interests of the men and who show some ethical considerations for the opponents, and thereby inculcate a manly spirit, and tend to elevate the whole field of athletics, but they are exceptions so far as I can learn from the experience of others. It seems to be a fact that the field of athletics is as poorly equipped today as was that of gymnastics twenty-five years ago.

Now, let us consider somewhat briefly what are the essential and desirable qualities for an athletic trainer. First, and above everything else, he should be a man of pure morals. No man who stands in the relation of instructor or who is brought into daily contact with young men should be tolerated for a moment if he fails to observe the bounds that are laid down limiting personal freedom in that great law that utters an emphatic "thou shalt" and "thou shalt not."

Second, and on a par with character, should stand trained intellectual equipment for the work. This is an essential because more than half the suffering of the world comes from the meddling of the inefficient good man of the community. If he were a bad man nobody would follow his advice, and few would be directly harmed by him, but the good noodle leaves a train of mourners and sufferers wherever he goes.

Third, he should have the technical training that comes from a course of study in a Medical School, and he should also have the actual knowledge of the technique of the various forms of exercise that would enable him to correctly estimate the physical work involved in any form of contact. When a man tells you that he can increase a man's weight a pound by a half hour's track exercise, you wonder what his conception of material things can be.

Fourth, he should be a man of imperturbable good nature and patience who can lead others without their knowing it, and have a heart that is warm with sympathy for young men and that never loses confidence in them. He must be able to restrain them, encourage them, and at all times to stimulate them.

Fifth, he must be a gentleman in all that the word implies. A courteous bearing toward others should be so ingrained in his being that his influence would always refine and polish student life in this line where the rights of others are apt to be overlooked.

Sixth, he should be a man of affairs, able to understand men in a business way, so that he may influence young men toward systematic and business-like methods and honorable practices.

Now, are we not ready, as a people who pride ourselves on our ready adoption of whatever can be shown to be improvement, to demand that our sons shall have as great care displayed in the morals of their athletic life, where the trainer comes in direct personal contact with the man, as is shown in the conduct of the recitation room where the instructor meets the men *en masse* for the discussion of a predetermined subject? I believe that we are if the exact condition of affairs is understood by the people. We must urge that the same thorough preparation and high standard of character and intelligence shall be found in the athletic trainer that is now demanded in the gymnasium director. It will only be when this standard is secured that college athletics will be raised from the slough of semi-professionalism that now debases them. Parents and college faculties must no longer be indifferent to the kind of influences that surround their young men when enthusiasm and loyalty are pressing them to most energetic activity, and judgment is not calm in determining the path that leads to honor even though it leads to defeat. The responsibility rests on the faculty and not on the youth.

PRESIDENT C. W. ELIOT,

Harvard University:

The question which we are discussing is "What measures are best calculated to secure a dignified and influential place for Physical Training in the Educational Curriculum?"

"I suppose from the phrasing of the question that the educational curriculum meant the whole length and breadth of education from the primary school up; and I infer from the quality of this audience that physical training in the elementary school and the secondary school is quite as interesting to you as that in the college or university; so what I am to say will relate to the whole course of education, and will not be particularly concerned with the college period. Indeed, I should like to throw out at once from all consideration here the whole question of college athletics, so-called. They do not seem to me to be a part of what we should understand by physical training. They are an enormous exaggeration of anything desirable in the form of physical training; they result for a period more or less brief in the almost complete devotion of a young man's time to his body, necessarily at the sacrifice of his intellectual interests. I therefore put those highly competitive sports aside altogether, as having but little to do with the special subject before us.

"We mean by physical training the systematic side in the long course of development of the body from four or five years of age to full maturity; and the measure which seems to me best calculated to secure a 'dignified and influential place for physical training' in that sense is to get rid of the word 'physical' altogether, or, at any rate, to materially qualify its meaning. The Greeks had a far better conception than we have of the relation of the training of the body to that of the whole man. In this part of the country, at least, we inherit from our Puritan ancestors the conception that the body is something noxious and degrading, to be mortified and subjugated, and we carry this view of the body into education. I remember that, a dozen years ago or more, I made to our Faculty the modest proposition that the young men who were applicants for scholarships should first, as a necessary preliminary, submit to a physical examination, just as young men going into the military and naval schools submit to a physical examination. I thought it reasonable that we should know that young men, in whom we were to invest anywhere from $200 to $1,000 a piece, had at least a fair chance of possessing the health and strength necessary to usefulness in the community after they had received their training. This proposition, however, commanded but small support in the college Faculty. It was denounced as the most materialistic proposition the speakers had ever heard made in that room. That illustrates what I mean by saying that this word 'physical' is an incumbrance to us, that we should be better off from the point of view of this Association, if we got rid of it. As Dr. James has pointed out, the child is an intricate complex of physical, intellectual, and moral qualities, and all his qualities go together in education. Not that there may not be exceptional cases in which moral force triumphs over physical weakness; indeed, we know there are such cases. We know there are emergencies in life and in death when physical weakness is momentarily mastered by moral force—by the will power. But that sort of exception is not what we talk about in education. What we want in education is a harmonious, symmetrical development of the whole being, physical, intellectual, and moral, taken together. As Dr. James has already said, there are in this development certain parts of the body very important in their relation to the mind and the will. They are the nervous centres; and I am more and more persuaded that our particular care, in what we now call physical training, should be directed to the training of those nervous centres, rather than to the training of the muscles. Of course, we cannot train the muscles without training the nerves, nor can we train the nerves without training the muscles. We are dealing with an intricate problem; we must affect simultaneously the whole human system.

"This tendency to separate in our thinking bodily training from mental and moral training is in many ways deceptive. I have already spoken of the difficulty I encountered in proposing that candidates for scholarships should be tested physically before we invest in them. Now I am happy to say that, as the years have gone on, and we have provided in Harvard bodily exercises of all sorts, we have learned that the good physique, and particularly the good nerves, generally goes with the good mind and the steady, controlling will. As a rule they all go together. For example, we now have a physical examination of the holders of scholarships. We try to have them all examined twice a year. It has turned out, after a good many years of experience in these matters, that the holders of scholarships are physically, as well as mentally, superior to the average student. That illustrates what I think we see afterwards in the active world,—that the men who succeed in business, in professions, or in any strenuous occupation involving responsibility and hard work, are greatly superior physically to the average man. I think the present Faculty of Harvard College is a remarkably tough set of men; they have the bodily qualifications for prolonged, strenuous attention; and there is no better evidence than this of physical toughness. It is too much to expect that a child attend intently to any one thing for more than a few moments; and when you find men and women who are capable of prolonged and intense attention, you may be sure that they are persons of decided physical merit. Now it is this combination of powers that the prolonged courses of education should aim to develop; and when we advocate physical training for little children, youths, or grown-up people out in the stress of the world, let it be understood that we mean the harmonious, general development of body, mind, and will together; and that we are not thinking especially of the development of the muscular system, or even of bodily strength in the ordinary sense.

"Let me add a few words of encouragement with regard to the present position in the educational curriculum of what we call physical training. The propounding of this question suggests that we are somewhat discouraged about the present situation. Now I see no ground for such discouragement; but, on the contrary, I think this Association has the greatest reason to rejoice in the rapid progress of the educational interests with which it is specially concerned. When I look back on the condition of things in our schools and colleges thirty years ago, it seems to me that the progress has been in the highest degree satisfactory. I have no doubt what is true of Harvard is true of a multitude of colleges and schools as well; and here, on this ground, we have made extraordinary progress in the average well-being of the student and in his bodily strength. We have demonstrated also that the student class, as a whole, is physically superior to any other class of young men of the same age, whether mechanics, shopmen, clerks or farmers. The student class, I say, is physically superior to the mechanic class, the farming class, or the clerical class. Is that not an encouraging result of only twenty years' systematic attention to your subject? I believe, therefore, that this Association should look back with utter content at the progress already made, and with the clearest conviction that the near future will show greater progress still.

"Before I close I want to say one word about what seems to me an essential element in every profitable form of physical training. It is the element of enjoyment. I should say precisely the same thing of mental training—that kind of mental training is best, whether for the individual or for the community, which is invariably associated with enjoyment, with enjoyment at the moment and in reminiscence,—with the great enjoyment of achievement. I know that in my own case the reason why I have persisted during life in taking a reasonable amount of physical exercise is that I have always enjoyed it. I enjoyed my ride on the wheel for an hour this very morning. I am afraid I should not take open-air exercise if I did not enjoy it; and I think that is good sense,—good sense for a child, or for a youth of eighteen, just as it is for an old man. In every systematic physical training we should always seek this enjoyable quality. Therefore, sports are best,—sensible, moderate, unexaggerated sports; therefore those exercises are best, which always have in them an element of enjoyment, and which give a sense of achievement, the satisfaction of attaining skill, and a feeling of exhilaration.

"I look, therefore, with great satisfaction on what seems to be a distinct tendency just at present to develop in every possible way interesting and enjoyable sports as means of physical training, sports which can be followed throughout life. The development of yachting, horseback-riding, bicycle-riding and golf illustrate this. It is the enduring things that are best, the things that will last through life for man or woman, and that are thoroughly enjoyable for child or man."

Meeting adjourned to Radcliffe.

RECEPTION AT RADCLIFFE COLLEGE.

From five to seven o'clock, Fay House and Radcliffe Gymnasium were thrown open for the members of the A. A. A. P. E. and their guests. Some of the regular work in the gymnasium was shown and the building was thoroughly inspected. A reception followed in Fay House. Dr. Hartwell, President of the A. A. A. P. E., Mrs. Agassiz, President of Radcliffe, Miss Irwin, Dean, Miss Coes, Secretary, and Mrs. G. W. Fitz received.

A very enjoyable supper, provided by the Boston Physical Education Society, was served to more than two hundred present.

GYMNASTIC EXHIBITION IN THE HEMENWAY GYMNASIUM.

At eight o'clock an exhibition was given in the Hemenway Gymnasium of Harvard University, consisting of apparatus, class and individual work by students of Harvard University, Boston and Roxbury Turn Verein, Boston Swedish Gymnastic Club, the Boston Y. M. C. A. and Y. M. C. U., pupils from the Dwight School of Boston and Dr. Sargent's Normal School of Physical Training. An admission fee was charged to non-members of the Association and about twenty dollars was cleared above expenses, which amount was turned over to the Publication Fund.

REPORTS FROM SOCIETIES.

NEW HAVEN PHYSICAL EDUCATION SOCIETY.

The regular monthly meeting of the New Haven Physical Education Society was held on Tuesday evening, March 14th, at the Yale Gymnasium. Upon an invitation to witness a wrestling match, the Society repaired to the wrestling room and enjoyed a bout between two members of the middle-weight class of Yale, after which the instructor in wrestling and the winner gave a very interesting exhibition. The meeting was then continued with a paper by Dr. E. H. Arnold, discussing the value of so-called wrestling exercises. Taking arm raising forward, sideways, forward upward and sideways upward as typical of this class of exercises, and considering the muscles concerned in these movements and their action, the fact that these exercises do "not" accomplish what is claimed for them was clearly shown.

After instructions to the delegates to the National Convention and the previous election of four new members to the Society, the meeting adjourned.

ANNIE RENNARD HUGHES, Secretary.

PHYSICAL EDUCATION SOCIETY OF NEW YORK AND VICINITY.

The February meeting of the New York Society was held on the evening of the 16th at the Y. M. C. A. building, Borough of Brooklyn.

Announcement of officers and executive committee elected at the previous meeting was made, and it was decided to reappoint a committee on membership.

It was reported by the committee having in charge the proposed gymnastic exhibition, that preparations were being made as rapidly as possible with the view of having the exhibition take place early in the spring.

The discussions for the evening were upon the various resolutions scheduled to come up before the National Convention in Boston, Miss Bancroft, Dr. Truslow and Mr. Hillyer being those chiefly instrumental in recasting the resolutions in such form as should convey the sense of the New York Society.

The following new members were elected: Miss H. P. Clapp, Director of Physical Training, Yonkers; Miss K. G. Atkinson, Supervisor in Public Schools, Brooklyn; Mr. G. Y. Hepbrom of the Y. M. C. A., and Mr. Nils Bergquist, Instructor in Physical Training, Public Schools, Borough of Richmond.

The March meeting of the New York Society was held on the evening of the 18th at the Harlem Y. M. C. A., Borough of Manhattan.

The Committee on Exhibition reported great difficulty in obtaining a hall sufficiently large. It was hoped, however, that influence might be brought to bear so that one of the armories in the city could be used for the purpose.

Mr. Bolin made a motion for the appointment of a committee of two, whose business it should be to look after legislative matters pertaining in any way to Physical Education, and to keep the Society informed on such points, said committee to be appointed by the president; the motion was carried. The first subject for consideration was: "The courses in theory and practice at the present time offered and pursued in ten of the leading colleges and universities of the United States in the department of Physical Education."

Mrs. Margaret Stanton Lawrence of the Teachers' College read letters which she had received from Yale, Harvard, Columbia, Vassar, Wellesley, Smith, Bryn Mawr, Chicago University, Ann Harbor and Cornell, in answer to the following questions:

1st. Are gymnastics compulsory?
2nd. Are students marked?
3rd. How many hours a week?

In the majority of cases, gymnastics were compulsory, at least for the first and second years, credit being given for the work and the time, varying from two to four hours per week .

The second subject for consideration was the "Reports of three committees recommending action upon resolutions to be presented at Convention in Boston." These reports were presented by Miss Bancroft, Dr. Truslow and Mr. Hillyer, and were voted upon by the Society; it was also decided that the resolutions as adopted should be printed, in order that they could be more easily discussed at the Convention. The following members were elected to the Society: Miss C. Park, Mr. Knowles, Mr. C. W. Compton, Mr. F. C. Kerry and Dr. William Petit.

The April meeting of the New York Society was held on the evening of the 20th at Pratt Institute, Borough of Brooklyn. The Committee on Exhibition reported it an impossibility to obtain a hall suited to the purpose of the committee, and after some discussion it was decided that on this account and also the lateness of the season, it would be better to postpone operations until the fall.

The special subject of the evening was the reports of delegates to the Convention held in Boston April 4-6. These reports were given by Dr. Truslow, Miss Bancroft, Miss Fisher, Dr. Requa, Mr. Hillyer and Miss Garside, and were listened to with interest by those present. Suggestions in regard to future work to be done by the Society, and the best means of strengthening it, were given by Dr. Requa and Miss Fisher.

The following new members were elected: Miss S. J. Nicolai, Supervisor Physical Training in the Boroughs of Manhattan and Bronx, and Dr. C. Hanford Henderson, Director of Pratt Institute High School, Brooklyn.

The regular monthly meeting of the Society, the last one of the season, held on the evening of May 20th at the Y. M. C. A. building, Manhattan, proved to be one of the most interesting held during the year.

After the transaction of the business, Mr. H. H. Wikel of the Y. M. C. A., Brooklyn, read a paper on the "Relative importance of hygienic, educative and recreative gymnastic work." Mr. Wikel gave his attention wholly to conditions to be found in the Y. M. C. A. work. He classed his men under the mechanic, student and merchant classes and emphasized very strongly the necessity for recreative work with all. With the mechanic class, because of the monotony of their work and the usual unhealthy amusements, the necessity for recreation in a healthy and wholesome atmosphere was very apparent. In work with students, recreative gymnastics were indicated, because of excessive mental strain outside of the gymnasium, but strong work for the increase of vitality and powers of endurance was equally imperative. With the merchant class, those who represented heads of departments or business, and who were under more or less constant strain from the responsibility involved, and those occupying positions where monotonous routine was the prominent feature, had both to be considered. In both classes a strong recreational element seemed necessary. In general, with the class of men to be found in the Y. M. C. A., Mr. Wikel would have the order recreative, hygienic, educative, with variations according to the needs of the individual or group of students to be considered.

Miss M. D. Fisher of Pratt Institute, and Miss C. F. Bush of St. Catherine's Hall, Brooklyn, followed with papers on the "Purpose and character of gymnastic games from the standpoint of the physical educator."

Miss Fisher's paper dealt with her experience among women and children, particularly the latter. While fully recognizing the value of games in connection with gymnastics, she would use them only as an adjunct to the regular hygienic and educative work, feeling that the impossibility of doing definite, systematic work in games would preclude the idea of their ever taking the place of formal gymnastics. Miss Fisher spoke particularly of the conduct of games and of the way in which they could be graded.

Miss Bush recognized the universality of the play instinct and thought the transition from the kindergarten plays to the formal gymnastic work of the primary schools usually too abrupt. She advocated the longer continuance of games as a means of physical development and the very gradual introduction of formal gymnastics, which should at first be given as far as possible in the form of play.

A paper was read by Mr. Siexas of Trinity School, New York, in which he spoke enthusiastically of the use of games and sports for boys. An animated discussion followed the reading of these papers, in which nearly all present took part, and which revealed a wide divergence of opinion as to the order and proper place of these three forms of gymnastic work.

M. GARSIDE, Reporting Secretary.

PHYSICAL EDUCATION SOCIETY OF PHILADELPHIA AND VICINITY.

The regular monthly meeting of the Physical Education Society of Philadelphia and Vicinity was held at Drexel Institute, at 3 o'clock, Saturday, February 25th.

Dr. James K. Young addressed the Society on "Lateral Curvatures of the Spine." He spoke of the methods used to record and measure the amount of deviation of the spinous processes in scoliosis—photography, charts, instruments. Next, the factors instrumental in the production of curvature of the spine were considered. These are mainly faulty habits of assuming deforming postures in standing and sitting, due often to carelessness, sometimes to lack of physical stamina and poor nutrition, and in adults attitudes peculiar to some professions. Unilateral weakness of muscles does not enter as an etiological factor. Exercises prescribed for each individual will correct slight deformities and greatly improve more severe ones.

Mr. Thomas Elkinton gave a practical illustration of the use of some instruments for measuring curvatures.

The March meeting of the Society was held on the afternoon of the 18th. Dr. H. P. Boice read a paper entitled "Physical Training versus Military Drill." Military drill trains in accuracy and attention, but in only one direction, and is not complete in itself as a means of development. Physical Training is progressive with hygienic and educational aims, giving ever-increasing ability and fitting for any walk in life.

Dr. H. P. Leuf gave a talk on "Common Sense in Physical Training" which provoked considerable discussion.

A short business meeting followed. Dr. C. E. Ehinger, Dr. Grace E. Spiegle and Miss H. E. Trask were appointed delegates to represent the Society at the National Convention of the A. A. A. P. E., to be held in Boston April 4, 5 and 6.

The April meeting of the Society was held on the 15th. The afternoon was devoted to the discussion of the proceedings of the A. A. A. P. E. at the National Convention in Boston.

ESTHER KUHN, Secretary.

May 21, 1899.

CONVENTION OF NEW ENGLAND MEMBERS TO ELECT A NEW COUNCIL.

The Convention of the New England members of the A. A. A. P. E. for the purpose of electing a new Council of the Association, assembled in the Girls' Latin School, Copley Square, Boston, May 6th, 1899. This was in accordance with the decision of the Convention that the National Council should remain in Boston to continue the organization of the constituent societies, and to put the AMERICAN PHYSICAL EDUCATION REVIEW on a stable basis.

Thirty-six members attended the meeting.

Dr. J. W. Seaver of Yale University was chosen as Chairman of the meeting, and Dr. C. J. Enebuske of Boston as Secretary.

After remarks by Dr. Seaver calling the attention of the members to the importance of the suffrage about to be exercised by them in the election of the Council, whose duty it was to guide the Association for the next two years, balloting was proceeded with, resulting in the election of the following:

Council: Dr. W. Channing, Brookline; Mr. Chr. Eberhard, Boston; Dr. G. W. Fitz, Cambridge; Dr. E. Hitchcock, Amherst. Dr. M. R. Mulliner, Boston; Miss Hope W. Narey, Boston; Baroness Rose Posse, Boston; Dr. D. A. Sargent, Cambridge; Dr. J. W. Seaver, New Haven.

Substitutes: Mr. Hartvig Nissen, Boston; Miss Mary E. Allen, Boston; Dr. E. M. Hartwell, Boston.

A vote of thanks was extended to Dr. Hartwell for his prolonged and disinterested service in the cause of the Association and of regret that he was forced to retire from active participation in its future.

A vote of thanks was also extended to the school authorities of Boston for the use of the High School building.

Adjourned.

C. J. ENEBUSKE, Secretary.

REPORTS OF THE COUNCIL.

Meeting held at 5 Brimmer Street, at 8 p. m., April 14th, 1899.

Present: Miss Narey and Messrs. Eberhard, Hartwell, Hitchcock and Sargent.

Dr. Hartwell presided and kept the minutes.

It was voted to admit the following persons as members at large on the fulfilment of the usual requirements:

Massachusetts: Misses Rebecca Kite, Boston; Jessie R. Adams, Northfield; Helen R. Swift, Boston; May Taylor, Waverley; Leila R. Rous, Boston; Annie MacKenzie, Boston; Grace R. Brooks, Cambridge; Elizabeth Herrick, Cambridge; Martha D. Byington, Cambridge; Mary C. Morris, Cambridge; Jeanette M. Auty, Cambridge; Edna P. Carret and Christine J. Carret, Roxbury; Gertrude O. Peaslee, Boston; Florence Breed, Lynn; H. S. Cutler, Brookline; Charlotte B. Gerrish, Cambridge; Mary G. Clark, Roxbury; Lucy E. Wright, South Boston; Florence Winton, Cambridge; Helen M. Junkins, Cambridge; Beulah Smith, Cambridge; Julia R. Marvin, Brookline; Frances Moores, Cambridge; Florence H. Marston, South Boston; Clara F. Wadleigh, Boston; Elizabeth F. Gordon, Gloucester; Messrs. M. B. Gilbert, Boston; William Skarstrom, Groton; Richard F. Nelligan, Amherst; John H. Wright, South Boston; C. W. Fourdrinier, Boston, and Dr. J. H. McCurdy, Springfield.

Miss Harriet Avery, New Haven, Conn.; Miss Sara E. Boudren, Bridgeport, Conn.; Miss Mary C. Fish, St. Louis, Mo.; Miss Marian L. Earle, Providence, R. I.; and Miss Eva H. Martin, Chautauqua, N. Y.

Voted, That the Corresponding Secretary express the thanks of the Council for courtesies and kindnesses shown the Association in connection with its meetings, April 4, 5 and 6.

Bills for Convention badges and for the services of the janitor of the Girls' Latin School during the Convention were approved. Dr. Sargent presented a preliminary report on the receipts and expenditures relating to the Gymnastic Exhibition on April 6th, and stated that there would probably be a surplus of $20.00.

It was voted that the Council call a Convention open to all members of the Association, at the Girls' Latin School, Copley Square, Boston, at 10.30 a. m., on Saturday, April 29, or on Saturday, May 6, at the President's discretion, for the purpose of electing nine members of the National Council and three substitutes, as provided in the Constitution and Statutes of the A. A. A. P. E.

Voted that the Council adjourn *sine die.*

EDWARD M. HARTWELL, Rec. Secretary, pro tem.

Meeting of the newly elected National Council, Friday, May 19th, at the Hemenway Gymnasium.

Meeting called to order by Dr. Fitz at 8.30 p. m.

Present: Dr. Fitz, Baroness Rose Posse, Dr. Mulliner, Miss Narey and Mr. Chr. Eberhard.

Dr. Fitz was elected as temporary chairman and Mr. Eberhard as temporary recording secretary.

It was moved and voted to proceed to the election of the officers by ballot. The result of the ensuing election was as follows: President, Dr. D. A. Sargent; Vice President, Dr. Edward Hitchcock; Corresponding Secretary, Dr. G. W. Fitz; Recording Secretary, Baroness Rose Posse; Treasurer, Chr. Eberhard.

On motion it was voted to postpone the selection of the standing committees until the next regular meeting.

An offer of the plates of the English publication entitled, "Hints to Gymnasts," by the publishers of the "Gymnastic and Athletic Review," of England, was referred to the committee (to be selected at the next meeting) on Publication and Information for consideration and later report to the Council.

Voted, To authorize the Corresponding Secretary to have cuts made for an article by Herman T. Lukens on "Mental Fatigue."

The following persons were elected to membership at large of the A. A. A. P. E.: Theodore Kistler, Charles W. Sultan, Miss Mary B. Hervey, Miss Frances Musselman.

Voted, to order 250 reprints of two articles by Arthur MacDonald on "Experimental Study of Children" and "Child Study in the United States," published by the Bureau of Education, of Washington, D. C. Dr. Fitz reported that the Committee of Publication and Information had ordered one thousand reprints of a contribution by Dr. E. M. Hartwell to the report of the Commissioner of Education at Washington, D. C., on the History of Physical Education.

Adjourned.

CHR. EBERHARD, Recording Secretary, pro tem.

A meeting of the National Council of the A. A. A. P. E. was held on Friday, June 2, 1899, at the house of Dr. M. R. Mulliner, 160 Newbury Street, Boston.

The President, Dr. D. A. Sargent, was in the chair. Other members present were: Dr. Edward Hitchcock, Dr. G. W. Fitz, Mr. Chr. Eberhard, Dr. M. R. Mulliner and Baroness Posse.

The report of the Secretary, *pro tem.*, of the previous meeting, was read and approved.

On motion of Dr. Hitchcock, Dr. Sargent and Baroness Posse were appointed a committee to nominate the standing committees. The election resulted as follows:

Committee on Finance: Dr. Walter Channing, Baroness Rose Posse, Dr. D. A. Sargent.

Committee on Theory and Statistics: Dr. Edward Hitchcock, Dr. J. W. Seaver, Dr. G. W. Fitz.

Committee on Publication: Dr. G. W. Fitz, Dr. D. A. Sargent, Dr. M. R. Mulliner.

Committee on Technical Matters: Dr. D. A. Sargent, Mr. Chr. Eberhard, Miss Hope W. Narey.

On motion of Dr. Fitz it was voted that Dr. E. M. Hartwell be asked to serve as associate member of the Publication Committee.

It was moved and voted that the next meeting of the Council be held the first Friday of October at 7.30, at the house of Dr. Mulliner, 160 Newbury Street.

It was voted to refer the matter of advertisements of the Physical Education Review to the Committees of Finance and Publication, with full powers. This was afterwards amended to include the Treasurer.

The Treasurer's report was then read and showed a balance on hand June 2, 1899, of $286.54.

TREASURER'S REPORT.

Balance March 1, 1899	$340.65
Receipts	292.85
	$633.50
Paid out	$346.96
Balance on hand	$286.54

The report was accepted.

Adjourned.

Baroness Rose Posse, Recording Secretary.

CONVENTION EXPENSES.

Badges	$34.00
Janitor of School House	10.00
Programmes	6.55
500 extra copies Phys. Ed. Review	35.00
Y. M. C. A. Hall (Public Meeting)	25.00
Stenographic Report of Proceedings of Convention	25.00
	$135.55
RECEIPTS.	
Surplus of Gymnastic Exhibition at Hemenway Gymnasium	20.00
Net Expenses of Convention	$115.55

CHRISTIAN EBERHARD, Treasurer.

OFFICIAL ANNOUNCEMENTS.

Copies of the Proceedings of the A. A. A. P. E. for the years 1886 and 1890 are wanted. The Proceedings of 1886 have been out of print for a number of years, but some old copies were found in a second-hand book-store so that complete sets of the Proceedings could be made up. Now, however, it is impossible to get these unless members of the Association have copies which they are willing to dispose of. Seventy-five cents each are offered for copies of the Proceedings for 1886 and 1890.

EDITORIAL NOTE AND COMMENT.

The First National Convention of the constituent societies of the A. A. A. P. E. held April 4, 5 and 6, served to bring out clearly, as was hoped, the needs and possibilities of the Association. It was impossible to anticipate the results which were finally reached through thorough-going discussion. The meeting was characterized by a spirit of fair-mindedness and mutual tolerance which served to show how loyally the members of the Association stand by the organization. The individuals of the various factions merged their individuality and personal bias into a consistent effort to solve the problems presented for the best interests of the Association. There are probably very few associations whose members, although differing so widely in opinions of detail, yet work together so strongly for the advancement of the cause they have at heart. That the Association because of its constituent societies has been able to grapple more successfully with problems of detail, was manifest in the discussion, in which many delegates presented the views of their societies. The consequent breadth and exhaustiveness of discussion was in marked contrast to that of some of the previous meetings. The results, however, indicate that the time is not ripe for the formulation of a creed although the Convention has taught us its need.

When school hygienists shall agree upon the relative amount of time to be devoted to mental and to physical work in primary and grammar schools, physical trainers may hope to establish a definite basis for their claims to enter school programmes. The present study of fatigue promises much in this direction but no one is thoroughly satisfied that the best method has yet been devised for determining fatigue quantitatively, nor has the correlation of physical exercise to fatigue been satisfactorily effected. The claim so frequently made that physical exercise reduces fatigue under all and every condition can no longer be confidently held. There is apparently a very large choice in the kind of exercise to be given, not so much from the standpoint of the character and amount of the movements, the exactness of posture or any one of the infinitely small details which have occupied so much time in the physical training discussions, but rather from the standpoint of the amount of conscious attention demanded on the part of the pupil taking part in the exercise.

This phase of the subject must receive exhaustive experimental analysis before it can be established beyond question, but at the same time the results already reached indicate that if we can trust present methods of determining fatigue, those exercises which give most exhilaration and demand least attention are most efficacious in counteracting the exhaustion produced by the mental work demanded in the schools.

The discussion on Wednesday morning, April 5th, of the resolution relative to the question whether physical trainers as such should serve as experts in school hygiene and as practitioners in mechanotherapy unless they have a medical degree, brought out the fact that the resolution had been misunderstood. The most spirited argument in opposition was made by Miss Bancroft of Brooklyn.

Dismissing Miss Bancroft's introduction, which, according to her own characterization is too preposterous to be considered, in that a part can never equal a whole, we find that two distinct theses are apparently supported: first, that the physician, as such, is not qualified as an expert in all branches of school hygiene, and second, that the teacher of gymnastics is qualified as an expert in certain branches. It will thus be seen that at the outset two distinct standards are applied under one name; the term expert in school hygiene carries in the main body of the argument a much more favorable interpretation for the physical trainer than for the physician. The physician, to be an expert in school hygiene, must know all, or at least a majority, of the branches included under that name; the physical trainer need know but a few. In the end, however, this limitation, so necessary for the success of the argument, is cast aside, and it is asked, "How can you say that their (normal schools of physical training) graduates are experts in gymnastics and not in hygiene, when they are given a diploma covering both subjects?" The term expert in school hygiene has recovered its legitimate meaning, and the physical trainer has come into possession of the whole.

As proof that physicians are not experts, it is said that school hygiene is best taught in Clark University and the School of Pedagogy in New York. The second proposition has certainly been forgotten, for from this it follows that physical trainers are equally disqualified with physicians since neither are trained in these institutions. That the regular teacher, if a graduate of either of these, should have charge of school hygiene, is the logical deduction from the statement.

In further support of the argument against physicians as hygienic experts, it is stated that practically all the hygienic experts in America are not physicians. As these are apparently the only ones whose writings have come under Miss Bancroft's observation, the weakness of the argument is overlooked. The great number of foreign hygienic experts who have done the productive work upon which most American experts in school hygiene have built, are almost without exception physicians.

The difficulty with Miss Bancroft's argument throughout is that although she has carefully defined school hygiene, she has not defined the term, hygienic expert. She apparently considers any one an expert who as a result of a few hours' study in a two years' course knows something of one or two of the various phases of school hygiene, provided only that he is a physical trainer. By this looseness, or rather entire lack, of definition, it has been possible to make the proposition so ridiculous that we are credited with supposing that only doctors know when drainage and ventilation are bad, and at the same time the door is opened wide for the entrance of physical trainers as experts.

Even if a physical trainer does happen to know about that much disputed problem, the form of school furniture, and even if he is imbued with the idea, which is as absurd as it is prevalent, that slanting writing is responsible for most of the cases of spinal curvature in the schools, is he, therefore, an expert in school hygiene?

Using Miss Bancroft's own line of argument against the physical trainer as she has used it against the physician, we can ask with even greater force, "Is any" teacher of school gymnastics just graduated from a two years' course in a normal school, qualified to give an expert opinion as to the construction, heating, ventilation, etc., of a school building? How many are experts on the question of school furniture? How many on the psychological side of the subject? How many could give an expert opinion as to the kind and amount of mental work involved in the curriculum?" The definition of an expert which holds for the physician must hold for the physical trainer. Does Miss Bancroft suppose that a diploma from a normal school of gymnastics qualifying one as having studied "hygiene" bears witness to his being an expert on that subject? Surely she could find no normal school which for one instant would countenance such a definition of the term expert. Miss Bancroft is quite right in her statement that a medical degree does not constitute its holder an expert in school hygiene. She is entirely wrong in her statement, quoted above, that a diploma from a normal school of gymnastics does constitute its holder such an expert.

The question fundamentally at issue is whether the physician or the physical trainer is best qualified to become a hygienic expert. When we consider the elements that go to make up a physician's training, the amount of time given, the scientific and relatively exhaustive treatment of the fundamental subjects of anatomy, physiology, hygiene, pathology and therapeutics, the question is seen to admit of but one answer: The physical trainer cannot hope to be a rival of the physician. The form in which the resolution was finally passed is safe but indefinite. When we say that a teacher of physical training should not pose as an expert in school hygiene "unless he has had special preparation" for such work, we practically leave the question where it was in the beginning. The true solution will be reached in the evolution of the twentieth century school system. The tendency now is, and it seems fairly indicative of future development, to select medical men or women for such positions. It began in the colleges and is now extending to the cities. While it requires a severe stretch of the imagination to see the regular physical training teacher adequately serving in such a capacity, the work Miss Bancroft herself has done in Brooklyn suggests individual possibilities.

The financial condition of the A. A. A. P. E., although promising, cannot yet be considered satisfactory. The treasurer's report to the Convention for the year 1898 shows that for the first time receipts have more than equalled expenditures in spite of the expense incurred in the publication of the Review. While the surplus for the year ($212.00) is attractive in comparison with the deficits of previous years, the report of the expenses of the Convention shows that this surplus is practically wiped out by the extraordinary expenses incurred at that time. Moreover, we are in the position of beggars in that we have not paid any expenses for the Review except those for printing, postage and such clerical work as was necessary.

The increase in funds due to an increased growth in membership must soon reach a relative limit, since it will become dependent upon an increase in the number of those who are actively enough interested in physical education and in the work of the Association to pay for membership. The expenses of the Association, on the contrary, may be expected steadily to increase unless we are content to keep the REVIEW upon its present level. To do this will not, I am sure, meet with general approval. The REVIEW, if dependent, as at present, upon voluntary assistance, cannot give proper summaries of literature, reviews of books, etc., for the reason that those who are capable of properly summarizing or reviewing literature are too busy to afford to give their time gratuitously to this work. Again, the editing of the REVIEW involves such exacting demands upon the time of the editor that it is too much to ask that this be done, as now, gratuitously. The REVIEW is of necessity in but an early stage. Whether it will be decided that the publication should be in the hands of a permanent editor or be subject to the vicissitudes of the changing base of the National Council remains yet to be determined. Other societies have solved the problem by establishing a permanent editor who serves also as corresponding secretary, thus maintaining a permanent place to which communications and dues are sent year after year.

There is a possible and simple solution of one financial problem which has been adopted by many publishing societies, that is, to insert advertisements into the issues of their publications. This means has not been resorted to in the past because it was hoped that the income derived from membership fees would be sufficient for the needs of the Association. As this has not proved to be the case, there seems to be no reason why we should not follow the example of other scientific journals in this matter. By vote of the National Council the matter was left in the hands of the Publication Committee and the Treasurer. Their decision has not yet been reached, but it is expected that it will be in favor of the insertion of advertisements, and if so, such advertisements will begin with the September number.

The following circular has been sent to various educators in foreign countries by G. Demeny of Paris,, France:

WORLD EXHIBITION OF 1900.

Technical International Committee for Physical Training of Youth.

Sir and Honorable Colleague:

In the last quarter of this century, important works have determined the conditions of the physical improvement and training of man. Henceforward every educator who is worthy of the name, must know of this important application of biological science.

These principles are the only solid basis on which must be founded the conclusions of the various Committees for physical training, which are appointed in every land by the Department of Public Instruction. But the labors of the majority of them have been fruitless, because competent technologists, being of necessity in the minority, could not sufficiently influence the votes cast by various Reform Committees.

However, we ought not to vote about a scientific truth; we must impress ourselves with it and submit to it.

Therefore it is urgent, for the common good, to group together the learned men and the enlightened practitioners who have already published important works upon this branch of education.

A standing International Committee will be thus created, whose duty will be to express the ideas thus acquired, to popularize them under their simplest form, and to cause them to be approved by the governments of the various nations and the public opinion of various lands.

Thanks to the well deserved authority which the members of this high committee will enjoy, the evolution of physical training of youth will be hastened inasmuch as scientific facts and truths will be opposed to the prejudices of empiricism.

By the present circular, we beg for your assistance in this important work. We request you to give your adhesion and your support, in order to appoint this international technical committee at a Congress which shall be held during the World Exposition of 1900.

Respectfully yours,
G. DEMENY.

The formation of this committee and the organization of this congress cannot but greatly aid the evolution of rational physical education and the determination of its place in schools. May we have a comprehensive, exhaustive and fetish-destroying consideration of our many problems!

OBITUARY.

MISS HELEN O. BARNJUM.

On the twenty-second of May, at Lynnfield Centre, Mass., there died at the age of sixty-six one whose name has for many years been associated with the cause of physical education in Canada.

Miss Helen O. Barnjum, although born and reared in England, spent the greater part of her very active life in Montreal. Her energies were for many years devoted to church work and temperance, and when her brother, Fred S. Barnjum, an account of whose work appeared in the REVIEW for June, 1897, took up his gymnastic work, she acted as his assistant for the girls' classes.

On his death in 1888 from apoplexy, she took command of the physical work for girls and young ladies, and soon had classes so large that five or six hundred young girls came under her good influence every year.

Her influence is felt in Montreal, Ottawa and Toronto, where old pupils will preserve the traditions of the gymnasium, by graduates of her classes, who now number thousands, trained and developed to a healthy and rational life by her methods, and more especially by those whose privilege it was to know her intimately and who could realize the enormous volume of work she daily accomplished.

In 1893 she visited Chautauqua where she taught and investigated the methods in use there.

For the last four years a painful illness had prevented her from taking the active part in the gymnasium work that she would have liked, and as the disease progressed the work was left more and more in the hands of her representative, Miss B. May Hamilton, and her other assistants, who will continue the classes that have so long been associated with the old institution.

With her death the last link between the early days and the present is broken. The ending of her long and useful life closes another chapter in the history of physical education in Canada.

R. TAIT MCKENZIE.

Montreal, Can.

NEWS NOTES.

The publication of The Gymnast and Athletic Review, a journal of sport and pastime, has been suspended with the January number, after having completed its eighth volume in the new series. The Review has occupied a prominent place among the gymnastic publications of England, and has been very effective in improving the gymnastic nomenclature, introducing new exercises, formulating rules for the governing of gymnastic clubs, excluding inappropriate and harmful exercises, and in general bringing about a healthier condition in inter-club relations. It has published many illustrative exercises which have been collected in book form under "Hints for Gymnastic Leaders," and has also served as a medium of publication for notices of gymnastic competitions, criticisms and notes. It is unfortunate that lack of adequate support has necessitated its discontinuance.

Through the munificence of a private citizen, two public baths are promised Baltimore this summer.

An association has been formed in Cleveland for the purpose of establishing baths and swimming pools for the use of children. "The object of the association is to help the physical development of children and for the enforcement and improvement of sanitary laws for the benefit of school children."

The practical demonstration by Mayor Quincy in Boston is bearing legitimate fruit.

A local Physical Education Society has been organized in Omaha, Neb. The organization in Omaha was effected by Dr. Hastings, as secretary of the district society. The officers elected were: President, Dr. S. R. Towne; First Vice President, F. B. Barnes; Second Vice President, W. G. Retzer; Secretary, Superintendent C. G. Pearse; Treasurer, Nathan Bernstein. Additional members of the Executive Committee, Miss Fish, Frank Crawford and Superintendent Bodwell. Standing Committees: Theory and Statistics, Messrs. Pearse, Bernstein and Barnes; Publication and Bibliography, Dr. Towne, Miss Fish and Frank Crawford; Technical Committee, W. G. Retzer, F. B. Barnes and Dr. W. O. Henry. A strong tide of sentiment in Omaha is setting toward a deeper interest in the physical welfare of children in the city schools. Leading educators are looking forward to the obtaining of increased gymnasium facilities and also larger play grounds. On May 1, Superintendent Pearse and other members of the Society will begin an investigation of the growth of children in Omaha, similar to that conducted in Lincoln last spring. These measurements will be classified and conclusions deduced to form the base of a paper to be presented at the N. E. A. in Los Angeles this summer.

"Berlin is following the example of some other German cities in appointing school doctors. As no medical man may undertake more than six schools, about forty will be required altogether. Briefly stated, the duties are: (1) Examination of each child on entrance; (2) Special examination of those children whom it is proposed to classify separately, owing to physical defects; (3) Examination of absentees through alleged illness; (4) Report on suspected cases of infectious diseases and on bad hygienic conditions likely to affect the health of scholars or teachers; (5) A fixed consultation hour once a fortnight, so that teachers may go for advice and guidance."—The Gymnasium (England), March, 1899.

"The minister of education of Saxony has issued a decree that hereafter all girls and young ladies who attend the public schools and colleges of Saxony shall discard corsets and stays. The decree is the result of vigorous agitations in the press and public lectures of the medical fraternity. Physicians have been unanimous in their denunciations of the alarming increase of tight lacing, especially in Dresden and other large cities of Saxony. The practice has become so prevalent that children of the age of ten and twelve years have become addicted to tight lacing."

"The Belgian Minister of War, after numerous reports, has decided to have recourse to less theatrical and more physiological methods in physical training lines and has delegated Mr. Lefebvre to go to Sweden to study the system of physical education in use there. It is an open secret that this opinion has also gained ground among the eminent personelle of our officers."—La Gymnastique Francaise, Paris.

Many of the London churches are establishing gymnastic clubs under the direction of regular gymnastic leaders. These apparently are working forward quietly and strongly.

"The condition of gymnastics in Spain is very critical; in spite of the fact that the gymnastic legislation is better than in many of the European states, that the programmes are extensive and often modern in character, physical education languishes on account of the tropical nature of the country, the habits, and especially the education of the people. Nothing can be hoped for since gymnastic education is not made a requirement in the common schools, in the military schools or in the army. Every effort is now being made to influence public opinion and it is hoped that gymnastics will soon occupy the place it deserves and will contribute to the regeneration of the country."—Le Stand, Paris.

CORRECTION.—In the March number of the REVIEW in a news note, the statement is made that the Inter-Collegiate Gymnastic Contest which took place in New York, March 24th, was "the first Inter-Collegiate Gymnastic Contest ever held in this country." Attention has been called to the fact that our correspondent was wrong in this statement, since the first inter-collegiate gymnastic contest was held March 5th, 1898, in Chicago, Ill., under the auspices of the University of Chicago. The competing colleges were the Universities of Minnesota, Illinois, Northwestern, Chicago and Wisconsin. Medals were awarded to the first, second and third contestants in all of the events of the New York meeting, and in addition wrestling and fencing. Wisconsin gained 57 points, Chicago 27, Illinois 8, Minnesota 4, and Northwestern none. We are indebted to Dr. J. C. Elsom of the University of Wisconsin for the correction.

Oberlin College has established a four-years' course of study in physical training leading to a degree. This course is open only to women.

Stamford, Conn., has joined the list of cities which have established supervisors of physical training.

In the Fifth Annual Report of the Committee on Summer Playgrounds, Providence, R. I., the following conclusions, based on the consideration of the conditions of the children in the schools and the possibilities of correcting them, are reached:

"1. The influences of the long summer vacation, as hitherto existing, upon children of the poorer, crowded sections of cities is degenerating physically, mentally and morally.

"2. During the long vacation cities have a moral obligation to provide other opportunities than those of their worst streets for children living on those streets.

"3. Such opportunities must be in the immediate neighborhood of the homes of the children, and should be offered through the municipal government.

"4. Economic reasons and reasons of expediency indicate the public school plant, upon which millions of taxes have been expended for the use of the children, as logically the nucleus around which such opportunities should be centred.

"5. These opportunities should be planned to complement—not continue—public school work, and should be directed toward developing character through wholesome play and through manual and artistic training and the study of nature.

"6. Especially qualified men and women are necessary for the work."

SUMMER SCHOOLS OF PHYSICAL TRAINING FOR 1899.

Posse Gymnasium Summer School, 23 Irvington Street, Boston, Mass. July 5th to August 1st.

General and special kinesiology, theory and practice of medical gymnastics, practical work (Swedish) and gymnastic games. Extra courses in fencing, swimming, club-swinging and boxing.

Chautauqua School of Physical Training, Chautauqua, N. Y. July 10th to August 18th.

Seven courses of training, consisting of a normal course in theory and practice, and courses in corrective gymnastics, anatomy, physiology, Delsarte, athletics and first aid.

University of Wisconsin Summer School of Physical Culture, Madison, Wis. July 5th to August 16th.

Courses in personal hygiene, physical training, first aid, anthropometry, light gymnastics, track and field athletics, rowing and swimming. A course in physical training for women is also to be given.

Summer Conferences, Physical Training, June 14th to 27th, Springfield, Mass.

Physiology of exercise, psychology of play. Designed specially for original and advanced work. Dr. Luther Gulick, Director.

Harvard Summer School of Physical Training, July 5th to August 16th.

Courses in theory and practice, including among other topics, anatomy, physiology, personal hygiene, training, first aid, anthropometry, growth, physical examinations and diagnosis, spinal curvature, massage, tests of vision and hearing, practical work in measuring and charting individuals, light, heavy and Swedish gymnastics, military drill and marching evolutions, games, athletics, boxing, fencing, rowing, swimming, etc.

BOOK NOTICES AND BIBLIOGRAPHY.

Anthropological Investigations on One Thousand White and Colored Children. By Dr. Ales Hrdlicka. Forty-seventh Annual Report of the New York Juvenile Asylum. New York and Albany, 1899. Appendix, pp. 1-86.

Rarely does an institutional report contain such painstaking anthropological research as the one before us. The New York Juvenile Asylum is a correctional institution for truants, incorrigibles and minor offenders, its age limit being from 6 to 16 years. Dr. Hrdlicka made the following measurements on 1,000 white children and 100 colored children: (1) Height, (2) sitting height, (3) arm expanse, (4) weight, (5) depth of the chest at the height of the nipples, (6) width of the chest at the same height, (7) maximum circumference of the head, (8) greatest length of the head, (9) greatest width of the head, (10) height of the head from meati line, (11) diameter bi-auricular of the head, (12) smallest width of the head, and (13) average pressure and traction force of each hand.

The children in such institutions, it should be noted, come from the poorer classes of society, large numbers in fact the progeny of criminals, so that from a sociological point of view they must be regarded as belonging to the defective and abnormal classes. The investigations of Dr. Hrdlicka do not suggest, in such pronounced terms as one is accustomed to hear, that these children are physically inferior to other children of the same sex and similar age, and who are less handicapped in the struggle of life. When the children are admitted into the institution, he grants that they are both morally and physically inferior to healthy children from good social classes, but the inferiorities in the majority of cases he attributes to neglect and improper nutrition. Better food and more wholesome hygienic surroundings he considers the chief need of these children, and he notes great improvement in the character of the children soon after admission to the institution. From the reviewer's point of view, altogether too much is claimed for nutrition and sufficient account not taken of vitiated and depraved organisms which no amount of nutrition can bring to the degree of perfection claimed by Dr. Hrdlicka.

The tables and charts are presented with admirable clearness, and the curves aid materially in the interpretation of the facts outlined in the report. The examination of abnormalities of hair, forehead, face, ears, gums and teeth seem to have been done with commendable thoroughness. There is an excellent index at the end of the report.

WILL S. MONROE.

Monatsschrift fur das Turnweseu. Vol. XVIII. Berlin, 1899. This gymnastic monthly, which is devoted especially to school gymnastics and hygiene, is edited by Professors Euler and Eckler, of the Royal (Prussian) Training School for Teachers of Gymnastics, in Berlin, with the co-operation of twelve other leaders in physical training in Germany. Besides leading articles, each number usually contains the following departments: book reviews; tables of contents of the principal current periodicals published in the interests of gymnastics and related subjects, in Germany, Switzerland, Holland, Belgium, etc.; lists of new books, and miscellaneous matters, including reports, announcements, and news notes.

No. 1 (January). The Limits of Gymnastics for Women, Dr. Kueppers. Training, Dr. F. A. Schmidt. The New Regulations Controlling Gymnastic Instruction in the Schools of Rome, Dr. Ruehl.

No. 2 (February). Old and New Problems for Teachers of Gymnastics and for Teachers' Associations, G. Kalb. Modern Gladiatorial Games, H. Schroer. Physical Training in Croatia, L. Sorlini. Jahn and the German Language, H. Schroer. Annual Reports of the Associations of Teachers of Gymnastics in Berlin, in Breslau, and in the Middle-schools of Lower Austria. The Meeting of the Central Committee for the Promotion of Games in Germany, on the 14th and 15th of January, in Berlin. The Formation of the Imperial Association for National Festival Games.

No. 3 (March). Review of School Gymnastics in Bavaria in 1898, G. H. Weber. The Promotion of Gymnastic Games in the *Turnvereine*, I. Ch. Kennes. Our Gymnastic and Folk-Songs, E. Schwarz. The German Association of Teachers of Gymnastics (contains a list of 25 branch associations with a total membership of 2,008 teachers,—1,598 men and 410 women. Gymnastics for Women in Brandenburg, Kuepers. Courses in Games for Teachers, to be given during 1899 (a list of 11 courses for men and 7 for women, with place, date, and the person in charge of each. The usual duration is one week).

F. E. L.

Deutsche Turn-Zeitung. Vol. XLIV. Leipzig, 1899.

Official organ of the *Deutsche Turnerschaft* (the popular gymnastic association in Germany). In addition to leading articles such as those mentioned below, the regular departments include: annual reports, reports of meetings and gymnastic festivals, and other news from the various districts and sections of the association; notes from foreign countries; announcements of coming events; miscellaneous items; correspondence corner; the literature of physical training.

No. 1 (January 5th) The New Building of the Krefeld *Turnverein* (Gymnastic Society), Otto Scharf. Karl Pernin, Dr. Seyffert. The *Nationalfest* and the *Deutsche Turnerschaft*, Dr. H. Ruehl (continued in Nos. 2, 3 and 4). Exercises in Stick-Fencing, Gasch and Burger.

No. 2 (January 12th). Unveiling of a Jahn Memorial Tablet in Jena. Excursion of the First Ladies' Section of the Bealin *Turnerschaft* to the Riesengebirge and Adersbach-Wekolsdorf, M. Giese. Literature of German Gymnastics and Games from July 1st to December 31st, 1898, F. Goetz. Wand-Reigen for Women, Martha Hennemann. Groups of Exercises with Wands, on the Horse, and on the Horizontal and Parallel Bars Combined, Emil Dunkel.

No. 3 (January 19th). The Excursions after the Ninth German Gymnastic Festival at Hamburg—V. To Trollhatanfallen, Ernst Thenau. The Committee of the Deutsche *Turnerschaft* and its Opponents, A. Maul.

No. 4 (January 26th). Report of the Technical Sub-committee on the Ninth German Gymnastic Festival at Hamburg (continued in Nos. 5-17 *et seq.*, and giving the decisions of the judges in the various events at the National Festival held July 25th-27th, 1898), A. Reigen, Karl Rossbach.

No. 5 (February 2nd). The Results of Individual Competition and the Requirements in Popular Exercises at the Ninth German Gymnastic Festival in Hamburg, Franz Wilhelm (continued in No. 6). Groups of Exercises with Indian Clubs, Max Scheibe; and on the Horizontal Bar, N. Willi. Popular Festivals and Popular Culture, J. C. Lion.

No. 6 (February 9th). Chinese Fan Dance for Women, Emma Baumann.

No. 7 (February 16th). The Further Extension of German Gymnastics, Nawroth (continued in No. 9). Groups of Exercises Performed by the Stettin *Turnverien* at the District Festival in Bredow, August 21st, 1898.

No. 8 (February 23rd). Materials for the History of German Gymnastics—XVIII. The *Turneverin* Fifty Years Ago, M Zettler (continued in Nos. 10, 11, 13, 16).

No. 9 (March 2nd). Remarks on the Ninth German Gymnastic Festival, Professor Kessler (continued in No. 10). Free (or Dumb-bell) Exercises for Women, H. Munier.

No. 10 (March 9th). Dance-Reigen, Karl Rossbach.

No. 11 (March 16th). Groups of Exercises on the Horse with Three Pommels, Karl Wehner.

No. 12 (March 23rd). Good Faith! W. Winter. Gymnastic Notes (historical), Dr. K. Wassmannsdorff. The Excursions after the Ninth German Gymnastic Festival at Hamburg—VI. To Helgoland. Groups of Exercises with Wands, G. A. Barthel; on the Horizontal Bar, O. Schumann.

No. 13 (March 30th). Gymnastics at the Festivals, Alfred Maul (continued in Nos. 14 and 15). Groups of Exercises on the High Horizontal Bar, on the Horse, and on the Parallel Bars, P.Hentzschel.

No. 14 (April 6th). *Klootschiessen* (throwing for distance) in the North Sea Marshlands, J. Schurig. Wand Exercises, Leutheusser.

No. 15 (April 13th). Groups of Exercises on the Horizontal and Parallel Bars Combined, Gg. Schodel. The Academic Turnvereine and the Deutsche Turnerschaft, Albert Siebert.

No. 16 (April 20th). The Effect of *Fortbildungschulen* (night-schools) on the Work of the *Turnvereine*, H. Hertel. The Competitive Games of the Trojans in Sicily, Dr. Machnig (continued in No. 17) Reigen for Girls, Th. Talman.

No. 17 (April 27th). *Nationalfest* and *Turnerschaft*, Gustav Mockel. Reigen for Girls, Th. Talman.

F. E. L.

Public Schools of New York. Physical Education. Introductory Exercises. Prepared by M. A. Requa, M.D., and Sophie J. Nicolai, Supervisors. 47 pp.

The exercises are planned to give training in the following lines:

1. Education Gymnastics, free, and with apparatus.
2. General Gymnastics, free, and with apparatus, as dumb-bells, wands, etc.
3. Aesthetic Gymnastics.
4. Gymnastic Games.
5. Voice Building.

There are nine diagrams illustrating the orders for foot positions; no other orders are illustrated. The remainder of the book consists of arm movements and fourteen lessons of day's orders based on the Ling system of gymnastics. The descriptive part of the order is printed in italics, while the "commands of execution" are printed in capitals. The children are to be guided in the quickness and force with which they execute movements by the rapidity and strength with which the command is given.

Following the day's orders are given four extra drills for "harmonic poise," nine exercises for developing correct poise in standing, walking, sitting and rising, and eleven exercises for "arm movements and poise."

The pamphlet is well calculated to accomplish its fundamental purpose, the unification of the work in the schools of New York. Its title, "Introductory Exercises" disarms one's inclination to criticise the essential poverty of the physical experience offered the children. The training will doubtless be of value in improving the carriage of the body.

G. W. F.

PUBLICATIONS RECEIVED.

Report of Visitation of Schools in Norway, Denmark and Germany, Seth T. Stewart, Associate Superintendent of Schools, Boroughs of Manhattan and the Bronx, New York City.

Child Study Monthly, March, April, May, 1899.

Report of the Vacation Schools and Playgrounds, Department of Education, New York City, 1899. Boroughs of Manhattan and the Bronx. 160 pp.

United States Bureau of Education. Report of the Commissioner of Education, 1897-8, Chapter XII, Physical Training, by Edward Mussey Hartwell, Ph.D., M.D. Government Printing Office, Washington, D. D. 102 pp. (487-589).

Pedagogical Seminary, March, 1899.

Dietetic and Hygienic Gazette, March, April, May, 1899. Gazette Publishing Co., New York, N. Y.

The Gymnasium, organ of the National Physical Education Society, England, edited by E. Sully, London. March, April, May and June, 1899.

Report of the Public Education Association of Philadelphia, 18th meeting, with list of officers and members, Philadelphia, 1899.

United States Department of Agriculture, Office of Experiment Stations, History of Present Status of Instruction in Cooking in the Public Schools of New York City. Washington, 1899.

The School Weekly, Chicago School Publishing Co., Chicago, Ill. Vol I, No. 17.

Mind and Body, March, April and May, 1899. Milwaukee, Wis.

Posse Gymnasium Journal, Posse Gymnasium Club, 23 Irvington Street, Boston, Mass. January, February, March, April, May, 1899.

Physical Training, Dr. C. E. Ehinger, Pennsylvania School Journal, May, 1899.

Hints to Gymnasts for Leaders and Teachers of Gymnasia in Schools. Profusely illustrated. Published by the Gymnastic and Athletic Review, Brown's Buildings, St. Mary's Axe, London, E. C., England. 194 pp.

When to Prescribe Physique, Edward M. Schaeffer, M.D. Re-

***To be obtained as a reprint, 35 (25) cents, application to be made to G. W. Fitz, Cambridge, Mass.**

printed from Maryland Medical Journal, February 4, 1899. 16 pp.

Gymnastic Competition and Display Exercises. George Bell & Sons, London, 1897. Prepared by Mr. F. Grauf, of the Orion Gymnastic Club. 119 pp.

School Gymnastics, Jessie H. Bancroft, Director of Physical Training, Public Schools of Brooklyn, N. Y. E. L. Kellogg & Co., New York. 298 pp.

Psychological, Pedagogical and Religious Aspects of Group Games, Luther Gulick, M.D. Reprinted from The Pedagogical Seminary, March, 1899. Worcester. 17 pp.

Physical Education. Public Schools of New York. Introductory Exercises. Dr. M. A. Requa and Sophie J. Nicolai.

Die Kinderfehler, J. Truper, Editor, Sophienhohe bei Jena, Nos. 1, 2, 3. Germany, 1899.

Revue Internationale de Pedagogie Comparative, Dr. Couetoux, Editor, Nantes, France, March, April and May, 1899.

The Teachers' Institute, E. L. Kellogg & Co., Publishers, New York, N. Y.

Physical Training in Secondary Schools, J. W. Seaver, M.D., Connecticut School Journal, February 2, 1899.

The Growth of Toronto Children, Franz Boas. From the Report of the Commissioner of Education for 1896-97, pp. 1541 to 1599.

Advances in Methods of Teaching Anthropology.—Some Recent Criticisms of Physical Anthropology.—A Precise Criterion of Species.—Mittheilungen aus Amerika. Franz Boas.

Journal of Pedagogy, Syracuse, N. Y., May, 1899.

Colored Children: A Psychophysical Study, Arthur MacDonald. From the Journal of the Amer. Med. Ass'n, May 27, 1899.

Studies in Psychology. Edited by George T. W. Patrick. Volume II. Iowa City, Iowa, 1899. Bulletin of the University of Iowa.

Sloyd Bulletin, Boston, Mass., June, No. 3, 1899.

The Relation of the Central Nervous System to Educational Theory, Professor H. E. Bierly. Philadelphia School Journal, February, 1899.

Report of the Director of Physical Training, Miss Jessie H. Bancroft. In Annual Report of Superintendent of Instruction of the City of Brooklyn, 1897.

Experimental Study of Children, including anthropological and psychological measurements of Washington school children and a bibliography, Dr. Arthur MacDonald, specialist in the Bureau of Education. Chapter XXI of the Report of the Commissioner of Education, 1897-8, Government Printing Office, Washington, D. C. Pages 985 to 1204.

Child Study, Dr. Arthur MacDonald, Report of the Commissioner of Education, 1897-8. Pages 1281 to 1390.

Athletics and Fatigue: A Chapter of School Hygiene. J. Cecil Hague. London Journal of Education, February, 1899.

A Simple and Accurate Method of Carbon Dioxide Determination, with Demonstration. G. W. Fitz, M.D. Reprinted from the Jour. Mass. Ass'n of Bds. of Health, Vol. IX, No. 1. 8 pp.

Bed Posture an Etiological Factor in Spinal Curvature, Dr. G. W. Fitz, Am. Orthopedic Ass., 1898.

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Annual Report for 1895, pp. 242	1.00	(0.50)
Index to the Annual Reports, by J. M. Pierce, pp. 11	0.05	
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Vol. III, 1898, pp. 322 [4 Nos. at 50c (25c)] each	1.50	(1.00)
Vol. IV, 1899, No. 1, pp. 109	0.50	(0.25)
Physical Training, by E. M. Hartwell, M.D. (reprinted from Report of Committee of Education) 1897-8, pp. 102 (487-589)	0.35	(0.25)
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Constitution and By-Laws and Announcement and Appeal of the National Council of the A. A. A. P. E., pp. 14	0.02	
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VOL. IV. SEPTEMBER, 1899. NO. 3.

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AMERICAN
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VOL. IV. SEPTEMBER, 1899. NO. 3

STUDIES IN THE EFFECTS OF PHYSICAL TRAINING.*

WILLIAM G. ANDERSON
Yale University.

SIX experimental studies were made at the Yale Gymnasium during the Collegiate year 1897-98 by the writer, with the assistance of the members of the Elective Class in Gymnastics.

TESTS.

The following problems were attacked:—

1. Do the muscles on one side of the body become stronger if only the corresponding muscles on the opposite side are developed, and if so, what is the explanation?

This question would come under the title suggested by Dr. Ladd, "Transference by Practice." Dr. Scripture has used the term, "Cross Education."

2. After a difficult movement has been learned with the right hand, how much time is required to learn the same movement with the left hand?

3. In track athletics what is the most physically expensive event, as shown by the loss of bodily weight? What is the average loss of weight in ordinary class drill in the gymnasium? What is the loss of weight as shown by the so-called "individual work?"

4. Can muscles be trained to perform ordinary gymnastic

---

*Paper read at Columbia College, at the annual meeting of College Gymnasium Directors, December, 1898.

feats by merely thinking of the movements? In how much shorter time can the same or similar movements be mastered if learned through the muscle sense? Of the two methods of teaching gymnastic movements, namely, by sense of sight or sound, which is the quicker?

5. Of the two methods of strengthening contractile tissues, does the resistance offered by raising a weight fatigue a muscle quicker than that of an elastic band, and what are the dissimilarities in curves produced by the ergograph?

6. If one whole side of the body is trained, how much time is needed to educate the other? What physical and mental qualities are needed to execute difficult balancing feats, those calling for highly developed coördination such as walking on a slack wire, and what are the physical and psychical results?

Test No. 1. Do the muscles on one side of the body become stronger if only the corresponding muscles on the opposite side are exercised?

The first experiment consisted of testing the strength of the muscles of both hands by means of an oval spring dynamometer, then permitting the men to practice daily, with the right hand only, for one week. Each man was given a small piece of broom handle to "squeeze."

At the end of six days both hands were tested. The result will be found below.

Before recording the first test the men were allowed several trials to familiarize themselves with the dynamometer.

The data in the first table is made up after six days' work with a cylinder of wood 5x1 inch. The first and final tests were made with a steel spring.

Of course there was objection raised by the students because of the change in apparatus. To meet this objection several members made a second test using the dynamometer only. The results will be found in the second table.

The noticeable variations in individual cases are due to environment, physical and mental states and special characteristics. Of the various elements to be considered in these tests we refer to the "spur of competition." With two exceptions every man failed to equal his best record when tested apart from the other members of the class.

The figures in the first column represent the average number of minutes daily given by each man to the test.

The figures in the other column represent pounds.

The best records only were recorded, showing the gain made by the left hand after training the right.

	Minutes Each Day. .	R. Hand 2-2—98. . . .	L. Hand 2-2—98. . .	R. Hand 2-9—98. . .	L. Hand 2-9—98. . .	Gain R. Hand	Gain L. Hand. . . .
Mr. A......	5	106	97	115	112	9	15
Mr. B.......	15	90	80	92	88	2	8
Mr. C.......	5.5	125	97	126	117	1	20
Mr. D......	10	123	110	122	119	—1	9
Mr. E.......	20	95	86	116	111	21	25
Mr. F.......	6	125	115	129	126	4	11
Mr. G......	2.5	140	123	145	125	5	2
Mr. H......	10	104	87	106	95	2	8
Mr. I.......	.7	116	97	126	102	10	5
Mr. J.......	10	97	85	110	81	13	4
Mr. K......	12.5	101	94	104	96	3	2
Average..	8.42	111.1	97.3	117.3	105.6	6.3	7.8

It will be seen from the above table that the right hand gained, on an average, 6.3 pounds in six days; the left 7.8 pounds.

The following table shows the results of practice with a dynamometer. Time, one week. The gains only are given:

	Minutes each day.	Gain rt. hand.	Gain lft. hand.
Mr. M.......................	15	15	20
Mr. W.......................	5	10	11
Mr. K.......................	7.5	15	7
Mr. Q.......................	1.5	24	disabled
Mr. G.......................	2.5	7	15
Average of 4 men.............	7.5	11.7	13.2

In the case of the eleven men who practiced with the cylinder of wood the gain made by the left hand, which was not used in the six days, was 7.8 pounds. The right hand made a gain of 6.3 pounds.

The average of the four men who used the dynamometer was: Left hand gain, 13.2 pounds; right hand, 11.7 pounds.

The men who made these experiments were in active training during the year, and, in some instances, were excellent gymnasts and athletes. We do not argue from the above figures that a man will be sufficiently trained if he exercises only one side of the body.

Conclusions based on the experiment are:

If the muscles of one hand are trained or strengthened for a time those of the other which have not been exercised during the same time will increase in strength.

Test No. 2.—"Transference by Practice."

If an exercise, in contradistinction to a strength test, has been learned on one side of the body how long will it take to relearn it on the opposite side, working under like conditions?

The exercise selected is known as the "snake" in club swinging, one of the difficult movements with clubs. The men kept tally of the trials, the number of minutes of exercise, the time of day and their physical and mental condition. We give herewith a very condensed report of their work. The movement was carefully described and shown before the students were allowed to make their first trial. Each man then, under the direction of the instructor, executed the three circles comprising the snake.

As soon as it was evident that he knew the exercise well enough to try it alone he was permitted to take the club to his rooms with directions to practice daily for a number of days. When the circles had been learned he was to begin the "snake" with his left hand. To make the experiment more interesting one of the young men began the test with his left hand and later transferred to the right. He says in his report:

"During the winter recess I worked about five minutes daily with the left hand, spending in all 105 minutes. I then tried the movement with my right hand, and was able to make it the first time, moving the club slowly. I found after six trials I could make a better and more accurate 'snake' with my right than I could with my left hand. My left wrist, however, has been broken twice, and is not in good condition."

Another experiment was to teach the reverse "snake" to one who could execute the regular movement. In his report he says:

"To recapitulate, I have spent thirty-five minutes daily for six successive days on the 'reverse snake,' working only with the right hand. This practice enabled me to execute the movement in a creditable manner. I was able to do the movement as well with the left hand after forty-five minutes' practice. I then spent most of my time on the two hands, working them in unison."

Tables are given below showing the time required to learn a movement with the left hand after it has been learned with the right.

The figures indicate the total number of minutes spent on the exercise.

The average shows that the left hand will accomplish the task in about one-third of the time.

	R. Hand.	L. Hand.	L. Hand.
Mr. G..................	60	15 or 1-4	
Mr. W..................	135	75 or 5-9	63½
Mr. P..................	50	10 or 1-5	
Mr. Z..................	35	5 or 1-7	
Mr. G..................	100	10 or 1-10	
Mr. S..................	14	6 or 3-7	
Mr. D..................	91	45 or less	3½

Average for right hand, 69.1 minutes.

Average for left hand, 23.7 minutes.

An objection to this theory that is nearly always raised is this:

"If it is true that the left hand learns when the right hand is trained, why is it that a person cannot write with the left hand?"

Our answer is:

"Nearly every person can write passably well with the left hand the first time he tries. How many hours were spent in learning to write with the right hand?"

Ernst Heinrich Weber, the distinguished physiologist, carried out a series of experiments, showing that the sensitiveness of the skin on one side of the body was more acute if the same parts on the other had been trained. He used in his tests what is known as an æsthesiometer, an instrument for determining the tactile sensibility.

Dr. E. W. Scripture of Yale has made a greatly improved æsthesiometer, and has confirmed Dr. Weber's experiments.

Gustav Theodor Fechner, the founder of experimental psychology, noticed that the memory for arm movements is transferred from one side to the other.

Dr. Scripture found that the left hand grew stronger when the right was trained with a dynamometer.

Conclusions based on the experiment are:

If an exercise has been learned with one hand it can be learned in about one-third of the time with the other.

A. W. Volkman's tests for the perception of distance between points of a compass show: The left middle finger unable to note the distance between the points of the compass, 14 failures out of 25 trials; right finger 15 failures out of 25 trials. At the end of 60 days the left finger failed only 3 times, while the right, which had not been trained, failed 4 times. These tests were made in 1858.

Distance between points 0.07.

Mr. Walter W. Davis, a member of the Elective Class in Physical Education at the University, has carried on further tests this winter ('99) with the results here given.

"If the right great toe is trained daily in tapping, what will be the effect on the left great toe and on the hands?"

Test for rapidity of movement by A and B, the former practising 19, the latter (who is left-handed) 15 days; the unit of time 5 seconds.

These experiments are being carried on at the Yale Psychological laboratory.

	A		B	
	Nov. 29.	Dec. 20.	Dec. 6.	Dec. 20.
Left foot	12	17	15	16½
Right foot	18	19½	13½	20½
Left hand	24	27½	21½	35½
Right hand	27	32	22	33½

Only the right great toe was used. Neither hand was trained.

A.

Left foot not trained	gained	5	taps.
Right foot trained	gained	1	tap.
Left hand not trained	gained	3½	taps.
Right hand not trained	gained	5	taps.

B (left handed).

Left foot not trained	gained	1½	taps.
Right foot trained	gained	7	taps.
Left hand not trained	gained	14½	taps.
Right hand not trained	gained	11½	taps.

Test No. 3—Loss in weight.

What is, physically, the most expensive test in the track events, as shown by the loss of weight? What is the average loss of weight in the gymnasium class drill?

What is the loss of weight in individual cases when men exercise according to prescription?

Observations were made at the Yale field in April, when the Y. A. A. held two sets of games.

In most cases the athletes were stripped but had not been rubbed down.

Some of the data has been rejected on account of its inaccuracy or because men waited too long after the run before being weighed.

Event.	No. of men.	Average loss.
100 yards dash	3	0.66 lbs.
440 yards dash	9	0.8 "
880 yards dash	10	0.62 "
1 mile run	12	1.04 "
120 yards hurdle	7	0.46 "
220 yards hurdle	4	0.62 "
1 mile walk	10	0.95 "
Broad jump	4	0.56 "
Pole vault	5	0.65 "

In the high jump, hammer and shot, the loss of weight amounted to almost nothing.

The weather was cold, the track heavy, the attendance light, and the spirit of competition mild. Had these games been with Harvard the results would have been somewhat different. A few of the new men worried their weight down more than they ran it off; the veterans were calm, almost indifferent.

A member of the Elective Class, at one of these games, broke the American record in pole vaulting. His actual loss in weight was ½ pound.

Table showing the greatest variations in the loss of weight in the track events:

Event.	Greatest loss.	Least loss.
Quarter mile	2½ lbs.	¼ lb.
Half mile	1 lb.	¼ lb.
Mile	3½ lbs.	¼ lb.
Mile walk	2 lbs.	½ lb.

What is the loss of weight due to ordinary class drill?

Sixty members of the night class were weighed before and after taking their exercise. We were obliged to weigh the men in their gymnasium costumes.

The drill consisted of 20 minutes given to free movements, that is, without apparatus, followed by twenty minutes' work on the bars, rings and horse. The greatest variation in weight was from 2 ounces to 2 lbs. The average loss in weight is approximated ½ lb.

What is the loss of weight as shown in individual work?

Dr. W., a graduate, kept an almost daily record of his variations in weight during December, January, February and March. He gave as the result of over 100 observations the following:

"My winter clothing averaged 10 lbs. in weight. The figures give the weight when stripped, but to ascertain the variation due to bathing and rubbing down, I weighed myself just before and after the bath. Basing the statistics upon tests taken during the winter, I find I lose ½ lb. daily, weighing myself immediately after the exercise on the main floor. I then take my bath and weigh myself again. The additional loss in weight varies from ¼ to ½ lb. The total loss fluctuates from ¾ to 1 lb. My work consisted of chest weights, dumb-bells, throwing the ball, special movements for the thorax and waist, and a short run. I remained on the floor about ¾ of an hour, but this period was interrupted by intervals of rest."

In addition to the above evidence we have quite a number of reports which cover periods varying from 4 days to 3 weeks. The results under like conditions conform to those furnished by Dr. W. Some of the athletes lose 2 lbs. daily when training in the gymnasium. We are informed by Mr. C., one of the centres on the 'Varsity Foot-Ball Team, that he would frequently lose 4 lbs. during a game. We have not recorded extreme cases.

Conclusions based on the data collected:—

The most expensive event, physically, in the track events is the mile run; next, the mile walk.

The average loss of weight due to class drill is ½ lb.

The loss of weight in "individual work" is, including the rubdown, from ¾ to 1 lb.

Test No. 4.

A—Can muscles be trained to execute gymnastic movements if they (the muscles) are not tried but the exercise is thought out?

B—In how much shorter time can the same or similar movements be mastered if learned through the muscle sense?

C—Are gymnastic movements learned more quickly through the sense of sight or the sense of hearing, in other words, by imitation or by a descriptive method?

The results are based on a number of experiments.

A—A few simple exercises were carefully described, but not shown; the menfolded their arms and to counts went through a drill in their minds for four minutes, stop watch. They paid the utmost attention to the test, following carefully the counting. At the end of the time they arose from their chairs, took places on the floor and executed the movements. Only one man out of fourteen made an error. Time for the whole test, which was quite fatiguing, was six minutes.

B—To compare the time necessary to learn similar movements, by the sense of sight and muscular sense combined, we showed the same number of similar exercises, but did not explain them. The class learned the exercise in a few seconds over one minute without showing the fatigue evident in Test A.

C—The question between the two methods of teaching, namely, by imitation or description, was quickly settled in favor of the first by unanimous vote of the class.

Conclusions based on the test are:—

Gymnastic movements can be learned if only the mind is trained, the muscles not being used. Movements when learned through the sense of sight require about one-sixth of the time and are not so fatiguing.

Gymnastic movements are learned more quickly through the sense of sight than of sound, but the shortest time is the result of the combination of the two senses.

Test No. 5.

Of two methods of strengthening contractile tissues, does the resistance offered by raising a weight cause fatigue more quickly than the resistance of an elastic band? What are the dissimilarities shown by ergographic tracings?

The belief is prevalent among physiologists that a muscle does its best work at the beginning, and its weakest at the end of contraction, and consequently all resistance offered by springs and elastic bands is not beneficial. It is even stated that such appliances are positively harmful and should not be given a place in a modern gymnasium.

We present the results of Test No. 5, as shown by the tracings of the ergograph. This device is modified from that of Mosso, its purpose being to produce fatigue curves; that is, to illustrate how a set of muscles tire. The distance a weight is raised is transferred by tambours to a stylus which traces, on a smoked drum, the length of the excursion. Their first evidence of fatigue is marked by a shortened line. A succession of shortening lines forms what is known as a "fatigue staircase."

If it is true that an elastic band will tire a muscle quicker than lifting a weight, we then should expect to find this staircase sooner when the band is tested.

That the two devices are not similar in action, is admitted, but if we try to make an elastic band do its work in the same manner as a weight, then it will no longer be elastic and the test will fail.

This statement is made to meet the objection of the class, which was this:—

"A ten-pound weight is a ten-pound weight at the start and finish, while a rubber band is nil at the start and only equals ten pounds at its utmost stretch, consequently to get a fair test make the band do ten pounds of work at every fraction of the pull."

This might be done, but if it were done we should no longer be testing elasticity. We therefore based the test on this plan:

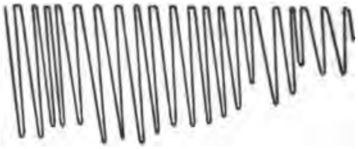
The lift was to be two inches, the weight five to ten pounds. To get a rubber band to approximate this we attached to the weight an elastic cord of such strength that when contracted two inches it would raise the iron from the floor.

After an elastic band lifts a weight one-quarter of an inch from the floor it does not stretch, in an appreciable manner, if the weight is then lifted three feet.

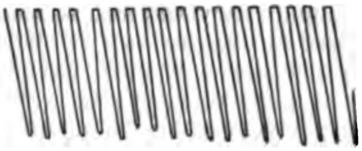
The method of working the ergograph was as follows: The operator was seated, his forearm secured by uprights, his hand grasping a vertical handle, and the first finger, which was left free, was passed through a ring of raw hide. The pull made by this finger was two inches, the same as the height the weight was lifted. Two more uprights formed the limiting boundaries of the finger pull.

A metronome was placed before the operator, who made a contraction every other second. As soon as the finger failed to make a complete excursion the tracing told the tale on the revolving drum. When fatigue began to manifest itself the lines grew shorter and shorter until they showed it was impossible for the operator to contract the muscles. The same person was allowed to rest until the afternoon, then to repeat the operation, but to use the second device. The next day under the same conditions the tests were repeated.

A number of experiments were made daily; large numbers of tracings were secured. The two given here are selected because they are typical and clear.



1. The last twenty contractions of a series of eighty-five, made with a 5-lb. bell. Mr. L., Feb. 17, 1898, 2.30 P. M.



2. The last nineteen contractions of a series of eighty-five, made with an elastic band. Mr. L., Feb. 18, 1898, 2.45 P. M.

If we are to base our final judgment on the lines shown by the tests it is that the weight causes fatigue more quickly than the elastic band, and that the curves made by the rubber are more even and regular. We must remember that, when using an elastic band, there is a period of almost complete rest for the muscle, which occurs just before the contraction begins. We do not find this interval of repose when the weight is used because it must be kept off the floor during the entire exercise. We presuppose that the weight is not to hit the floor at the end of each lift. Again, we are not dealing with short, powerful elastic bands nor extremely heavy weights. A long band is preferable, as is a light weight. We are in no haste to say that the question is definitely settled.

In the experiments carried on by Mosso and Lombard, curves were secured which showed fatigue resulting from three causes: the use of the will, electrical stimulation of the nerve and stimulation of the muscle itself. We hope to carry out more complete tests next season and to try the methods used by the two scientists.

Conclusion.—Under nearly like conditions an elastic band does not tire the muscular mechanism as quickly as a weight.

Test No. 6.

If one entire side of the body is trained, how much time is needed to educate the other? What physical and mental qualities are needed to execute difficult balancing feats, viz: Those calling for highly developed coördination, such as walking on a slack wire, and what are the physical and psychical results?

The last of this series of experiments was the most difficult from a physical (?) standpoint.

In test No. 2 we tried a like experiment with the arm and hand, but in order to see how much extra time was needed to relearn, when nearly one whole side was called into action, we placed in the gymnasium a 30-foot slack wire, the ends 10 feet, the slack two feet, from the floor.

We wished also to study the effects of very difficult balancing on the mental states, and vice-versa; also to ascertain how much time would be required to learn to walk or stand on a wire two-tenths of an inch in diameter. The first attempt to step on this unstable base was certainly discouraging. We do not recommend the experiment if persons object to rather numerous and forcible bumps. The following report, kept by one of the men, is so similar to that of others, who succeeded, that we quote from it:

"On the 5th of April, 1898, I tried to stand on the wire for the first time in my life. The thing wobbled so I thought of giving the test up; finally straightened my knee, and after repeated trials remained standing for three seconds. Counting both morning and afternoon, I spent 45 minutes on the wire, and at the close of the day was able to stand 15 seconds. On April 6th, balanced on my left foot one-half minute. Up to this time I had used only my left foot. On April 8th, remained on the wire 1 minute and 45 seconds; began with the right leg, and was able to stand 30 seconds after 11 trials. On April 11th, took 13 steps on the wire. In less than one week had learned to walk back and forth and to balance on either foot until fatigue compelled me to leave the wire. The second week I learned to kneel and to balance on either foot with my hands in my pockets. The third week was able to walk back and forth, to turn around and to balance on both feet with hands in pockets. I now began to swing on the wire but fell. Found this the hardest task of all. The swinging is done while standing on one foot. The second day was able to swing 50 times. I found that when I had learned a trick on the left side I could sometimes get the same movement on the right side in a few minutes, although it took me several hours to get it on the left.

"The eyes must be fixed intently on one spot. I chose the attachment of the wire. The undivided attention must be fastened on the act of balancing. The passing of the wire across the field of vision, the shifting of the eyes, loud talking, any sudden sound, a falling object, in fact the slightest thing that distracted the attention, caused a fall. The mental and physical fatigue of the first few days was great, the condition of the mind was similar to that after excessive study. I suffered from pain in the lower back, my feet were sore and the leg tired from standing on it so long.

"I noticed that, after a hard day's work on the wire, I was unusually irritable and could not study well at night. At this writing I can look where I please, carry on a conversation and can do all of the difficult movements in club swinging while on the wire."

Mr. S., a well trained gymnast, in his report, says:

"Began work April 5th, 1898. April 6th, balanced on my left foot 38 seconds in the morning, 1 minute and 18 seconds in the afternoon. April 7th, took six steps. May 5th, took 65 seps, could remain on the wire as long as I wished. May 17th, was able to remove all of my street clothing down to my tights. Had the most difficulty in removing the shirt; I spent three-quarters of an hour in actual practice."

We made a study of the faces of the men. Mr. S.'s face after close application showed lines of pain similar to those noticed after he had sprained an ankle. Most of the students who persisted in their efforts, showed lines of worry and fatigue. This was more pronounced than when learning feats on the horse, rings and in tumbling.

Some comments from notes kept by the men are appended. Of the ten who tried the wire, eight began with the left leg. After the balancing had been learned on one side it was possible to balance on the opposite side in less than one-third of the time. The men who had been trained as gymnasts learned quicker than those who had not been so educated, although two were very apt who had had no previous training in the gymnasium.

"The knees should be extended. The weak and 'bent kneed' inevitably failed.

"It is much harder to balance on both legs than on one.

"The majority of men balance better when the left leg is in front.

"It is easier to walk backward than forward.

"The best balancing is done when we 'let go.'

"Don't keep the muscles tense.

"Lying down on the wire is the easiest trick of all."

Close application to study or laboratory work incapacitates persons for fine balancing. Men who lack confidence in themselves fail.

Conclusions are:

If one side of the body is trained to perform certain movements the opposite side will learn the same movements in less than one-third of the time. Experimenters understand the teaching of the "muscle sense," which plays such an important part in tests of this character. In the first trials the "trick" is stumbled upon, but in the second the experience acquired does not necessitate this groping around. We may infer that the molecular adjustment needed to learn a difficult exercise is in the brain and does not extend, to any great degree, along the nerves and muscles.

The mental faculties needed to perform these difficult balancing movements are will power, close observation, self-reliance, courage, self-control, quick reaction and attention. By use these faculties are strengthened, and will, no doubt, lend their aid when other efforts call for them. The physical result is coördination, which is economy, the producing the best results with the least expenditure of force.

The results of these experiments confirm the belief prevalent among physiologists and psychologists that muscular aptitude bepends upon the training of brain centres, and that the muscles and nerves are agents which act in accord with the kind and character of the stimulus used.

The condition of the neuro-muscular machinery is of the greatest importance and should be kept in the best possible state.

It would be quite as impossible for a skilful surgeon to perform complete operations with poor tools as for the body to do its best work when the contractile tissues are flabby.

Finally, we believe that the students in our university will perform work that is more satisfactory to themselves and the faculty if they pay more attention to physical education.

The youth who is healthy, other things being equal, will learn more and better than he who is ailing.

EFFECT OF COLLEGE WORK UPON THE HEALTH OF WOMEN.

DELPHINE HANNA AND NELLIE A. SPORE

Oberlin College.

In Oberlin, young women of the college and academy are given their first physical examination soon after entering school in the fall, their second in the following spring, and their final examination in the spring of the junior year, when they complete their required gymnasium work. The required work for the year is four half-hour periods a week for four months.

The following table shows the relative strength of one hundred young women as taken at their first and second examinations. The table is arranged according to percentages; the strength expressed in pounds, the lung capacity in cubic inches.

	Back		Legs		Chest		R. Forearm		L. Forearm		Lung Capacity	
Per Cent	First	Second	First	Second	First	Second	First	Second	First	Second	First	Second
1	232.6	243.6	277.8	369.3	86	90.4	68.3	83.8	59	67.2	202.5	217.5
2.5	222.9	238.7	271.2	333.5	77.8	81.1	65	73.1	57.3	66.5	196.125	211.25
5	218.3	226	265.7	303.1	73.9	78.3	61.7	67.2	55.5	62.8	183.185	197.5
10	196.2	214.9	240.3	281.1	70	76.9	59.7	62.8	53.3	56.2	179	187.75
15	191.3	208.9	226	254.6	66.6	75.2	54.9	59.2	50.1	54.7	175.525	184.1
20	185.2	200.6	219.8	241.4	65	71.6	52.7	57.3	47.8	53.6	171.485	180.12
25	179.7	198.4	214-9	238.4	63.2	69.4	49.6	55.4	45.6	52.5	169	178.5
30	175.3	196.2	207.2	232.1	58.4	67.8	48	53.7	44.4	50.7	163.85	176.01
35	171.6	193.8	200.6	226	57.2	66.3	46.3	52.3	43·4	48.8	160.94	173.525
40	166.4	186.3	194.6	219.4	56.1	64.5	44.9	52	41.4	47.4	159	171.45
45	160.9	181.1	178.6	206.5	54.7	62.1	44.1	49.6	40	45.8	1 57	169.7
50	157.6	177.5	174.9	202.8	52.9	60.4	43.7	48.5	39	44.1	152.1	165.85
45	154.9	174.8	171.6	199.1	51	59.4	43	47.4	37.7	42.6	149.875	162.5
40	152.1	172.6	163.4	196.7	49.6	58.4	40.1	45.2	36	41.4	144.9	160.33
35	144.4	168.7	157.6	185.2	47.4	57	38.8	44.1	34.2	39.7	141.745	158
30	136.7	163.1	153	174.2	46.3	55.9	35.3	43.6	32.6	38	139.75	153.85
25	131.2	157.3	147.7	162	45.2	54.5	33.9	42.3	31.3	36.9	137.15	148.5
20	124.6	150.3	133.6	155.6	42.1	53.1	32.3	39.5	30	34.2	131.65	143.5
15	110.2	141.1	128.3	150.5	40.8	51.3	30.5	37	26.9	32	128	138.165
10	99.2	129	115.2	138	37.9	47.4	28.5	33.5	24	29.8	120.65	131.485
5.5	75.4	117.9	93.7	115.7	34.2	45.2	23.1	30.9	20.9	26.1	110	129
2	70.9	113.2	90.4	104.7	28.7	39.7	20.4	28.2	17.6	23.7	97.525	123.025
1	68.3	99.2	88.8	91.5	27.1	36.4	14.3	24.3	13.2	22	82.5	112.5

Of these one hundred young women, forty-eight report their general health the same as on entering, forty-three report a decided improvement, the health of nine is not so good, forty-two had no colds or the same number as the previous year, forty-eight report fewer colds, and ten more colds. Only twenty had needed the services of a physician, and none of these for serious illness; eighty-eight had gained in muscular strength and twelve had lost; ninety-eight had increased in lung capacity and two had decreased.

Of the thirty juniors examined, twenty-five report their general health better than during their high school course; two had never been ill; the remaining three report themselves in a more nervous condition than when in high school; twenty had gained in muscular strength, and ten had lost, the loss being largely in strength of legs, probably due to the level country; twenty-seven had increased in lung capacity, and three had decreased.

From so small an amount of data one must not draw too broad conclusions, but for these young women there certainly was an increase in vitality.

If college directors would publish more of their data, we might in time settle the question about which there seems to be so much doubt in the public mind, and know that under proper conditions, a college course increases the physical as well as the mental strength.

THE WORK OF CHARLES FAYETTE TAYLOR,* M.D., IN THE FIELD OF THERAPEUTIC EXERCISES.

HENRY LING TAYLOR
New York City.

Though Charles Fayette Taylor was most widely known for his achievements in orthopedic surgery, he never lost his interest in remedial exercises.

The following account of his early studies and activity in this branch is contained in a letter written by him from Redlands, California, June 16, 1897:

"So far as I know and believe I was the first person who practiced kinesipathy, or the movement cure, in this country. Just as I got through with my course of lectures at the medical department of the University of Vermont, in Burlington, early in June, 1856, I received a letter from my brother in New York, who said there was stopping with him an old fellow by the name of Donovan (I think) who talked a great deal about curative exercise, and he was trying to get some patients, but he kept his method a profound secret. I heard in some way, about the same time, of the Swedish system of Ling, and became very much impressed with the idea, so much so that I determined to go abroad for the purpose of seeing what I could find on the subject, and I started at once for New York. When I arrived, Donovan had gone and I never saw him, but I heard that Mr. Marcus Spring, a New York merchant living on Staten Island, had an article on the subject, written by Dr. James Garth Wilkinson, a homeopathic physician of London, and I went to Staten Island to borrow the publication. I was invited to dinner, and for the first time in my life I drank a glass of wine. They hunted long and wide, and at last found the article—I think in some magazine—and I had the reading of it. I was sorely disappointed that it contained so little. I took the last money I had and started at once for London as a second-class passenger, where I arrived safely. There were three persons practicing the movement cure in

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*Born at Williston, Vt., April 25, 1827. Died at Los Angeles, Calif., January 25, 1899.

London; a Swede educated at the Royal Gymnasium in Stockholm by the name of Georgii, M. Roth at 16A, old Cavendish Street, Cavendish Square, London, and an Englishman whose name I have forgotten. I first applied to Georgii, but he would not be troubled with learners. I then went to Dr. Roth, who accepted me at a guinea an hour, and I paid him for 60 hours in advance. I used to go every morning at about eight o'clock, always finding him at his breakfast, and he spent most of his time in translating from the German writers. His instruction was not what it ought to have been, but I picked up a good lot which laid the foundation for all that followed on those lines. My book entitled "Theory and Practice of the Movement Cure," published in 1860 or 1861, was an effort to express some of the ideas absorbed from Dr. Roth at that time. But I soon got over that infliction and afterwards very soon began to think my own thoughts."

"In 1858 my brother* went to Sweden; but he did not enter the Royal Gymnastic Institution, but secured an entrance to the Dr. Satherberg Institution. Ling had been some time dead and Branting was the leader of the Royal Institution in Ling's place. You know the Royal Institution consists of several departments: the curative, the pedagogic and the military, each with a system of exercise adapted to the special needs of the class for which it was intended. I suppose that the schools of Stockholm are the best arranged of any in the world, and exercise for scholars is planned with great skill and judgment, and finely adapted to the needs of young persons; at least, that is the way I was impressed when I visited them in 1881."

"When my brother began in the winter of 1858 and '59—after his return from Sweden—I opened an office in the Cooper Union, working both there and at the Institution at 38th Street and 6th Avenue (I was then an equal partner with my brother), and on the first of September, 1859, I dissolved partnership and went it alone. In 1863 I moved to 5th Avenue near 22nd Street, where I remained three years, and in 1866 removed to 1303 Broadway (old number), and in 1872 removed to corner of 6th Avenue and 53rd Street. * * * I wrote some articles from time to time, several of which were published in newspapers. The *Times* had one as a long editorial of more than a column; the *Evening Post* had nearly a column editorial written by Mr. Bryant; and various short notices got into the newspapers, especially into the

*Dr. George H. Taylor.

Express and *Tribune* and *Independent*, all of which contributed a good deal towards spreading the idea of "curative exercise." Besides this I contributed an occasional article to the medical journals. Nothing that I ever sent to the medical journals was refused."

"Mr. Hodge, Superintendent at the Cooper Union, and at the same time a writer for the American Encyclopedia, first edition, talked with me about the movement cure when I gave him the main facts of the case, telling him that my brother and myself were practicing it. He wrote an article which was printed in the encyclopedia, and to my regret he left out my brother's name. For this I was very much blamed, as it was assumed that I was the cause of it, which was not true. Mr. Hodge said the reason was, that I had been practicing two years and was known, and that my brother had just begun practicing it and was not known, which was true. * * *"

At each of the places mentioned, which have been repeatedly visited and are well remembered by the writer, there was a large, well-lighted exercise-hall, with the necessary dressing-rooms and offices. The hall was furnished with couches and other apparatus almost entirely, if not entirely, of Dr. Taylor's design and invention, and there were always one or more assistants who gave all their time to the work. At first much of the work was done by hand, but very soon apparatus was introduced for modifying posture as in lateral curvature; others were operated by the patient against the resistance of weights, or by the hand or foot power of an assistant, the patient remaining passive. After removing to 100 West 53rd Street, eight or ten of the more important pieces of apparatus, among them apparatus for lateral suspension (No. 2), for abdominal kneading, patient procumbent (No. 12), for lateral trunk flexion, patient recumbent (No. 28), two for respiratory movements, patient reclining (respirator), for knee flexion and extension, hip flexion and extension, hip abduction, and vibration of the feet were actuated by power from a steam engine. A number of the old apparatus for active movements at the various joints, and for forced correction of faulty attitudes, were still in constant use. There was also a standing frame and low parallel bars for training certain helpless or paralytic cases in standing and walking, a box heated by gas for heating cold or paralytic extremities, and an adjustable trapeze for trunk flexions and circumductions.

The exercises given by hand had been gradually superseded by resistance or power machines until at this time (1872), comparatively few exercises were given free or by hand. It should be remembered that long before this the orthopedic side of the practice which had been growing and developing almost from the start, had become much the larger and more important. The cases that made use of the "treatment-room," as it was called, were cases of lateral curvature, those in need of chest development, certain paralytic cases, a few cases of constipation and indigestion, and a large class of cases which Dr. Taylor called "mental," who, though often perfectly helpless, were mainly in need of stimulation and invigoration, through muscular training and helpful direction. Into the management of such cases, Dr. Taylor threw the whole force of his personality. He made use of graduated exercises for general tonic as well as for special local effects, and to change their mental tone and point of view. In the last analysis it was to his untiring energy and personal force of character that so many of this class owe their restoration to usefulness and vigor.

Massage was rarely prescribed, though its theory was well understood by him; specific exercises usually being preferred, perhaps because he valued so highly and never seemed to lose sight of their mental effects. The exercises were always rigidly prescribed and given by a skilled assistant. The majority of the orthopedic cases, including those suffering from spinal or joint disease, never visited the "treatment-room," but were treated by local rest, rigidly enforced by mechanical appliances. The cases of infantile paralysis were treated partly by apparatus and partly by exercises and dry heating of the extremities, while in the lateral curvature cases the treatment by exercise and support went hand in hand, one or the other predominating according to the grade and other peculiaritics of each case.

From 1866 to 1884 some of the severer cases were taken into his private sanitarium, where there were fifteen or twenty rooms for their accommodation. It should be noticed that therapeutic exercises were always used to produce certain definite results according to the indications, and never employed as an exclusive means of treatment.

Dr. Taylor was always eager to learn, of anybody or anything that had anything to teach. He was passed master in at least three branches of the healing art, in the therapeutics of exercise and rest, in mechanical orthopedics, and in mental hygiene, using this term in no mystical sense, but in the practical way in which he applied it. He also made use of the ordinary medical and surgical methods, often calling in eminent men as consultants or working with the aid of the family doctor. His personal prescription of drugs was, however, reduced to a minimum, not from any unreasonable prejudice, but because in his special practice he felt that other means usually accomplished more for the patient. His aim was always to take a broad view of the case, to treat the patient, not the disease, and his first effort was to establish a definite diagnosis and ascertain the therapeutic indications. He selected his cases, that is, he took only cases that he considered had a reasonable chance of substantial benefit, though many of these had been unsuccessfully treated or pronounced hopeless by others, and many curable cases falling outside of the lines of his experience were referred to experts in other departments of medicine.

The following account of the development of some of his ideas was dictated by Dr. Taylor in 1887:

"Immediately after returning from England in December, 1856, I set up apparatus corresponding to that which was used in giving the movements which I had learned, only to discover that it was not possible for me to administer the treatment as I had been taught to do it. While I recognized, as I still do, the solid base of truth and fundamental principles in certain ideas relating to curative movements, so soon as I attempted practical treatment of cases by movements, as I had seen them given,I was brought to a sudden standstill by the conviction that for the most part they were entirely empirical. Now I am mentally so constituted that I cannot do anything unless I can give myself a good reason for doing it. To twist the leg one way for one affection and the other way for another affection was incomprehensible and therefore impossible. But I could comprehend that slow muscular actions might produce different effects from rapid ones; and that a local muscular action and local movements might produce general or local effects or both combined, so I had to originate both the theory and practice of therapeutic exercise. Not an idea excepting that relating to the fact that it was possible to localize bodily movements for therapeutic purposes did I get from Roth, Georgii, an English physician whose name I have forgotten, and all other expositors of Ling's system."

"One of the first things that I recognized was the necessity of controlling the circulation in a peripheric sense. Instead of putting the feet into warm water to relieve the head and warm the feet, I set the muscles of the feet and leg into such regulated action as I thought would be most likely to call blood and retain it in the extremities. First I used the hand alone in resistance to the patient's muscular action in flexion and extension. That did well enough when I could do it myself and could control both patient and operator, but when I was obliged to have assistant operators I found the effects produced to be very different. I suppose my first study of mental conditions* began then and there, though I was then quite unconscious of it. Conceiving very clearly the derivative tendency of sustained muscular action below the knee while the rest of the body is in repose, and the impossibility of accomplishing all I wanted by the aid of an operator, I resorted to—I may say I was forced to resort to—mechanical means to take the place of and, as I hoped, to improve the effect of a living operator. So I adopted the following means: I took two pieces of board, shaped them to the bottom of the shoe and securely fastened them there by means of straps; they projected about a foot beyond the toe, and at the end cords were attached which passed through pulleys over the patient's head and were properly weighted at the end. The patient sat in an ordinary cane bottom extension chair such as are carried on shipboard, and the pulleys were carried by two pieces of wood screwed upon the back of the chair extending above the head. The weight having a long leverage flexed the ankle and excited resistance, so that it was easy for the patient to keep up a gentle motion for considerable time without fatigue. The appliance was as effective as it was simple. It was my first apparatus for movements and is the No. 1 of the series. It only produced extension and is not applicable in cases of infantile paralysis. It was finally superseded by No. 22,† but for derivative purposes in warming the feet it is probably better than any apparatus I have made, and except for the several other and more effective means of producing peripheric circulation it would no doubt have continued in use."

"The next apparatus for bodily movements was what is still called No. 2.‡ It was my first attempt to give form and direction on a large scale to bodily movements, and may be considered the actual point of departure from unassisted or assisted movements to mechanically regulated movements. I saw how futile it was to attempt to hold the body by means of the insufficient and variable strength, and deficient skill of assistants, with their unharmonizing mental conditions, more especially as brought out in cases of lateral curvature. When I had arrived at that condition of mind—a clear conception of the necessity and enormous advantage of mechanically regulated movements for therapeutic purposes—the rest followed as naturally and as inevitably as day follows night. I remember how excited I got. In the first place I made a little model of No. 2 at home while you were playing around me—Martha was a baby in her mother's lap. It was November or December of 1859. The full grown No. 2 apparatus that was made then is the same one now in use."

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*Dr. Taylor was very much interested in the mental hygiene of his patients and very successful in treating severe functional disorders, accompanied by a mental twist.

†An apparatus for active extension and assisted flexion of the legs.

‡Apparatus for lateral flexion of the trunk, with side pressure, the patient suspended by the hands.

"During a number of years past I have considered No. 2 as a useful but not very important movement in lateral curvature. Its efficiency is undoubtedly vastly increased since it is operated by steam, especially in increasing the flexibility of the spinal column at the point of rigidity—that is, at the point of greatest lateral deflexion. But at the time it was invented and began to be used it pleased me mightily. It did with accuracy and definiteness and ease to both patient and operator a thing which, at the best, I fully saw was always done inaccurately and with painful efforts and with unsatisfactory effects. I had not escaped beyond the empirical stage of movements, and the result of the fabrication and use of No. 2 was the immediate invention and making of appliances for all other movements that up to that time I had been giving, which included nearly everything that the human body is capable of. I do not remember but one failure to accomplish by machinery with precision and with far better results than could be otherwise obtained, every movement that I undertook to produce by that means. Instead of the long and cumbrous nomenclature by which the different movements were described, I found it much more practical to simply give the number of the machine which performed that particular movement. Hence the high numbers to which the machinery actually reached, and they would have reached much higher if I had kept on numbering them.* But long before I had reached during this inspiration of invention the twenties, many machines that were perfectly practicable, useful, and some of them quite ingenious, were dropped out, sometimes because they were superseded by others, but more frequently because as my conception of movements grew and altered, I found them useless as not corresponding to what I believed to be the very best thing for the patient. For instance, the entire set of apparatus for lateral curvature, which was good in itself, and far better in my opinion than any fixed positions or movements which I have seen in the different institutions I have visited, has been superseded by the lateral brace and the respirator.* Even No. 12, and it certainly was effective, has been set aside because of the belief in the more natural and greater effectiveness of 26 and 28. It will go out of sight and memory when the horizontal twist movement shall have been devised and inaugurated."

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*They numbered thirty odd.

"Kneading the abdomen had been extensively practiced, particularly in Water Cure Establishments for indigestion and constipation and, it must be admitted, with good, often with surprisingly good, results. My personal use of the same practice had satisfied me that the method was useful, but as done by an assistant not reliable in effect. As a means of stimulating the abdominal action, No. 12 was certainly much more effective than the best results obtainable by manipulations. Admitting all this, I still regard it as not quite natural, with possible chances of afflicting internal injuries, and so in removing to 100 West 53rd Street in May, 1872, the reclining position was altered to the prone position in order that the abdomen might fall forward upon the vibrating pads, which would thus be further away and less likely to injure the kidneys, liver and spleen. At the same time the vibratory motion was made to be very slow. Though at present superseded, I regard the movement as highly useful and with some modifications to guard against possible accidents already intimated, might be reintroduced with satisfactory results, provided the other means of stimulating intestinal activity should be found to be insufficient."

"Not long before removing from the Cooper Institute in May, 1863, I had reached No. 26 in apparatus for special bodily movements. The latter was made in response to the desire to have some means of bringing the muscles of the back and hips into gentle action while avoiding any strong effort. I was still under the influence of the ordinary professional sentiment which found expression in the term "spinal irritation," and had not yet clearly apprehended that the cures or ameliorations of people under treatment for cases of backache were due to the tonic effects of the movements, and not at all to the special action of the spinal muscles. Nothing could be more successful than the plan for bringing gentle muscular activity into rhythmical play by No.

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*A power apparatus for respiratory movements. No. 12 was for abdominal kneadings; 26 was a swinging movement for trunk flexion and extension, and 28 was a power apparatus for lateral trunk flexion.

26. But I was not long in discovering that the undoubted and often remarkable improvement of cases depended more upon the tonic effects of motion through the loins upon the digestion, secretive, and assimulative apparatus, in increasing the general tone to health and correspondingly diminishing the hyperæsthesia, than on any special effects upon the spinal muscles producing the motion."

"In 1857, 38th Street was on the upper edge of the built-up portion of the city; there was even much unoccupied land below that point. As soon as I could get the necessary apparatus I opened an office in my brother's building and began giving "movements." The idea took at once and the patients began to multiply. Some gentlemen, finding it difficult to go so far up, suggested that if I would open a branch farther down town it would accommodate many persons who could call for their treatment going down to and coming up from their places of business. I accordingly opened a branch in the Cooper Institute late in the autumn of 1858 or possibly early in the year 1859, but I think in November of the first mentioned year. I should say, in order that the position may be completely understood, that I first began practice alone in 38th Street, but my brother desired to take me into partnership with him, and I became an equal partner, I think, on the 1st of May, 1857, which continued until the first of September, 1859, when I separated from him and began alone again in the Cooper Institute, on a capital of $42.56, and no personal patients. I have often been told that the first year's success was something phenomenal. One day forty-three patients visited my office, a larger number than I have ever had since in one day; twenty-five or thirty patients were not at all infrequent. They were mostly for movements; the larger portion were women, though I had quite a number of gentlemen from time to time. Prices were low: $1.00 a visit, much less by the month, and a very small charge by the year for certain cases of lateral curvature. But notwithstanding the low charges, at the end of the first year I had taken in more than five thousand dollars, had seven hundred dollars in the bank, and several hundred dollars in bills receivable. Orthopedic cases scarcely paid expenses; but they appealed to me very strongly and my interest in them constantly deepened without, as I could see, diminishing that in the other cases. There was nothing remarkable, when properly considered, in the rapid growth of practice at that time. A patient never came whose coming was not worked for. There was nothing accidental or phenomenal about it, unless the immense amount of labor which I performed be considered phenomenal. I mean labor intended and calculated to bring patients. I did some things then which I would not do now, but at that time I did not even know there was such a thing as a code of medical ethics. I certainly did nothing which was not strictly legitimate and honorable. But I understood perfectly that I must not only be able to treat patients properly, but that it was equally necessary to get patients to treat. I had written one article which was promptly accepted and published while in 38th Street, entitled "The Treatment of Paralysis of Motion by Movements," another "The Movement Cure with Cases." I had also written, beginning I think in 1857, a series of articles at the solicitation of Dr. Marcy and Dr. John C. Peters, the editors of the Homeopathic Journal, which appeared in that paper, entitled "Theory and Practice of the Movement Cure." It was these articles, some of them written ten years before, which, with slight alteration and some new matter introduced, were put together in the fall of 1859, and were afterwards published under the same name. It was a work beyond my capacity at that time. Now that you know the circumstances under which it was written, you can better understand its crudeness and deficiencies. Nothing could illustrate mental change and mental progress better than the contrast between the chapter on Pott's disease in that book and the paper on "The Mechanical Treatment of Pott's Disease or Angular Curvature of the Spine," which I read before the New York State Medical Society at Albany at its meeting in February, 1863, and which to this day remains almost a classic on the subject. The figure showing the instrument applied was changed to the one now seen some years afterwards."

"I was particularly fortunate in the character of some of my first patients. Mrs. William Cullen Bryant came to me soon after September, 1859, and was accustomed to make frequent friendly calls. She once told me she never came to the city without calling to see me. Finally she brought her husband, the poet, who staid all day, and soon after there appeared a column editorial in the *Post*, giving a carefully digested and lucid account of the new treatment. Mr. William H. Fry, musical and dramatic editor of the *Tribune*, was an early patient. I had several merchants also."

"It was a favorite habit of mine at that time which continued for many years with much good result, to trace if possible the influence or influences which brought every patient to me who applied. I was thus able to correct some mistakes and to persist in a course which was proved to be the best. While applicants asserted various influences it was very plain that in the majority of cases personal liking had far the greatest influence in directing them to me, and that depended almost wholly on an honest and earnest endeavor to do the best I could. I never could find that manner had much to do with it."

"The lecture,* the notices, the *Times* editorial which I had written, Mr. Bryant's article which was his own statement growing out of his interview with me, did me a great deal of good. There was nothing in the nature of an advertisement about them. Somehow I had managed to give some ideas relating to the philosophy of exercise which people remembered for a long time. Mr. Bryant's article appeared in the spring, I think, of 1860. It brought me a letter from Walton, Del. Co., N. Y., which resulted in my visiting the N. family, where I saw the two bedridden daughters. It brought an interview with a gentleman resulting in my visiting Nashville, Tenn., in July of that same summer; and they brought me first and last a large number of patients from the thinking class. Among them there was a number of educated Catholic people, and some time during the following fall or winter Archbishop Hughs, then the most conspicuous figure among the Catholics on this continent, became a patient."

"During the writing of almost every line of these reminiscences I have felt anew the feeling which has possessed me from first to last—of the inadequacy of my preparation for the work which seemed to fall to me. How I felt this, and how great has been its hindrance, it would be difficult to describe, or for any one else to fully appreciate. I never yet have reached the point where I could either read or write without a dictionary at my elbow and without putting it into constant requisition. I thus acquired long ago some sense of the importance of the exact use of words, and the idea that the study of words, in their more definite significance than is frequently given to them, is worthy of special attention on which a career of usefulness may be founded, as expressed in my letter from Teneriffe, had its origin. I often read the dictionary by the hour. Thus my labor was more than doubled and writing became specially difficult and laborious for me. I should probably have done much more except for the dread with which the thought always inspired me, and the hard work which would inevitably accompany it. It was like planting, hoeing and harvesting at the same time. More than that, I never have had full use of my eyes, at least not for twenty-eight

*Delivered in 1859.

years. In fact, I have never had since 1859 the ability to read more than an hour or two at a time, before my eyes would become either painful or tired beyond the power of further using them. Of course this has been a great drag and hindrance and has made it necessary for me to exert myself to remember whatever I might chance to read or hear. And speaking of remembering, I think it is too much a part of me not to be set down here that when I was quite a small boy I began to exercise memory for the purpose of cultivating it, and adopted various plans which have followed me more or less during life for the purpose of strengthening my memory. Except for the probability that these efforts were to a certain extent successful I think I should have been completely handicapped from the first by the disadvantages under which I have always labored. I do not wish to enlarge upon the subject but think it proper to set down the facts of the two special hindrances, as well as some of the compensations, which have characterized my career. I acknowledge that deficiency of early training left me more free from bias and less hemmed in than is often the case after special training. But it has always seemed to me that I could have managed the bias if I could have had the training."

How completely Dr. Taylor overcame through his own exertions the defects in his schooling is evident from these recollections as well as from his other writings. His mind was fertile in original ideas and stored with information, from his constant habit of informing himself in regard to everything with which he came in contact. He was particularly interested in processes of manufacture, in machinery and in people as individuals, especially those engaged in productive occupations, and those in need of help, mental, physical, moral, or material, and his interest was not theoretical; he was one of the most helpful of men. Naturally his personality and conversation were most interesting, and he was remembered by all who knew him not only for his pertinent and pithy observations, but for his uprightness, his deep and unaffected sympathy and personal force of character. To these, no less than to his mechanical genius, his clear-sightedness, his energy and perseverance, his extraordinary personal and professional success were due.

SELECTED TITLES OF BOOKS AND ARTICLES BY DR. CHARLES FAYETTE TAYLOR.*

Cure of Diseases by Movements. Medical World, Jan. 14, 1857.

The Movement Cure. North American Journal of Homœopathy, Nov., 1857.

Pathology and Treatment of Paralysis of Motion. Medical Monthly, Nov., 1858.

The Treatment of Paralysis of Motion. Boston Medical & Surgical Journal, June 2, 1859.

Treatment of Lateral Curvature of The Spine by Specific Exercises. Henry Ludwig, New York, 1859.

Theory and Practice of the Movement Cure. Lindsay & Blakiston, Philadelphia, 1861.

Pathology of Lateral Curvature of The Spine. Transactions, American Medical Association, 1865.

The Pathology and Treatment of Lateral Curvature of The Spine. Bulletin, New York Academy of Medicine, March 18, 1868.

Differential Diagnosis in Diseases of The Spine. The New York Medical Journal, May, 1869.

Spinal Irritation, or Causes of Backache Among American Women. Wm. Wood & Co., New York, 1868.

Is There Any Therapeutic Value in the So-Called "Localized Movements? Medical Record, August 15, 1870.

Emotional Prodigality. Dental Cosmos, July, 1879.

Bodily Conditions as Related to Mental States. Popular Science Monthly, May, 1879.

Sensation and Pain. Putnam's Sons, New York, 1881.

Climate and Health. Popular Science Monthly, July, 1895.

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*Selected from a list of forty-two titles of books and articles on scientific and medical subjects.

THE QUESTION OF GROWTH AT PUBERTY.

S. B. MOON

McDonogh, Md.

Doubt has sometimes been expressed in regard to the universality of application of Bowditch's law of growth. It is well known that boys in the aggregate exhibit, according to this law, a retardation of growth in height at about eleven or twelve years of age, and a subsequent acceleration for the next year or two. Whether this is always true of each individual boy is the point in question.

To decide this point a number of boys must be measured about the age of puberty once yearly for four or five years. With this idea in view, I began, in 1896, to note the approach of puberty on the paper of each boy measured at the McDonogh School. Of those who have reached that stage of development since then, only eighteen have been measured often enough for their records to be of value. These eighteen boys were measured three times before and twice after the advent of puberty. Successive measurements of each boy were taken somewhat over twelve months apart, perhaps thirteen in some cases. Moreover, pubescence is not a matter of one day, but of months, and it is not possible to predict just when it will occur. Hence some irregularities might be expected in the figures, even though the measurements be taken with perfect accuracy. The following table gives the height measurements of the eighteen boys mentioned above, the column headed P containing the measurements taken first after the advent of puberty.

SUCCESSIVE ANNUAL MEASUREMENTS OF TOTAL HEIGHT.

No.				P.	
217	1282*	1335	1385	1492	1554
218	1311	1352	1385	1420	1474
219	1350	1399	1441	1495	1570
225	1328	1392	1452	1553	1619
234	1430	1467	1511	1540	1574

*All measurements are recorded in millimetres.

259	1471	1521	1567	1611	1703
265	1335	1368	1413	1511	1592
272	1363	1402	1446	1505	1595
293	1288	1325	1358	1424	1526
294	1330	1377	1419	1455	1509
296	1308	1350	1393	1461	1550
300	1320	1358	1419	1475	1584
307	1347	1387	1460	1563	1647
308	1343	1387	1427	1481	1556
309	1344	1383	1430	1518	1618
314	1386	1438	1488	1552	1641
324	1401	1442	1487	1527	1584
331	1325	1351	1389	1470	1562

Taking the differences between numbers in successive columns, increments of growth in height are obtained, which show at a glance the comparative rates of growth, as follows:

INCREMENTS OF GROWTH IN TOTAL HEIGHT.

No.		P.		
217	53	50	107	62
218	41	33	35	54
219	49	42	54	75
225	64	60	101	66
234	37	44	29	34
259	50	46	44	92
265	33	45	98	81
272	39	44	59	90
293	37	33	66	102
294	47	42	46	54
296	42	43	68	89
300	38	61	56	109
307	40	73	103	84
308	44	40	54	75
309	39	47	88	100
314	52	50	64	89
324	41	45	40	57
331	26	38	81	92
Average	43	46	66	78

In every case but that of number 234, there was an acceleration of growth during one or both of the periods succeeding the approach of puberty, but only nine of the eighteen were retarded in growth of height during the year preceding that event. Several cases show so slight an acceleration that the amount is insignificant. In most of them, however, the acceleration is so marked that the average shows a steady increase, and is in the last period nearly double what it was in the first. Number 234 is particularly obstinate in exhibiting an acceleration where there should have been a retardation, and vice versa. There was no physical ailment known to me in this case to account for the irregularity. Number 294 suffered from tuberculosis and kidney trouble, which probably accounts for lack of marked acceleration in his case. Otherwise the boys were fairly good specimens of physical health and strength.

These figures do not confirm Bowditch's law so satisfactorily as might be desired. They are so irregular and inharmonious that in casting about for an explanation I was led to suppose that a boy's growth in total height might be made up of several inharmonious elements, and hence I constructed from the measurements of the same boys the following table of increments of growth in height of knee.

INCREMENTS OF GROWTH IN HEIGHT OF KNEE.

No.		P.		
217	20	18	33	9
218	23	6	17	11
219	20	19	9	25
225	27	31	24	17
234	27	13	4	10
259	19	11	20	22
265	13	9	26	26
272	22	16	20	16
293	17	7	9	28
294	15	17	13	24
296	24	21	18	30
300	13	14	29	21
307	15	25	26	18
308	10	24	13	26
309	21	22	21	34
314	22	15	22	19
324	16	8	12	25
331	15	15	15	25
Average	19	17	18	21

Here the figures present a general irregularity and lack of harmony such as one might expect did nature intend the rate of growth to be constant, and were the variations produced by circumstance or environment. The retardation in general so nearly balances the acceleration that the average is nearly constant. Eleven of the eighteen, however, show a retardation in the year preceding pubertal development, which tendency at this time in that direction is indicated also in the average. Percentile tables compiled from measurements of McDonogh boys indicate a retardation of growth in height of knee from eleven to sixteen years of age, while at the same time the length of the body is increasing more and more rapidly. This increasing rate of growth in body length is very marked in the case of the eighteen boys when their increments of growth in sitting height are arranged with reference to the advent of puberty, as in the following table:

INCREMENTS OF GROWTH IN SITTING HEIGHT.

No.		P.		
217	19	19	55	53
218	22	6	13	32
219	17	20	20	38
225	18	28	44	40
234	10	16	13	12
259	16	18	16	52
265	3	18	40	53
272	13	20	21	47
293	10	7	37	61
294	11	16	14	25
296	16	15	28	41
300	13	27	28	56
307	18	30	61	54
308	13	11	27	28
309	10	28	37	53
314	18	24	18	43
324	17	14	14	31
331	5	17	43	64
Average	14	19	29	44

It will be noticed that only two of the eighteen show any marked retardation of growth in sitting height, while all the rest exhibit a decided acceleration in one or more of the columns, and the general tendency is toward a continued acceleration. The acceleration is much more decided and general here than in the case of total height, and the average shows an increase in the last period of over three times that in the first. Number 234, as in the other tables, exhibits an entire indifference as to an obligation to follow Bowditch's or any other law of growth than his own.

The most noteworthy observation to be made from an inspection of this table, is that increase in rate of growth of sitting height is apparently independent of pubertal approach. It is true that the rate of growth of sitting height is accelerated at this point of development, but the same is true for a year or two before as well as afterward, and the general increase is fairly uniform. Upon the whole, study of growth in the individual seems to lead to the conclusion that pubertal attainment has but little if any effect upon the rate of growth, at least in many cases. The legs apparently have a tendency to outstrip the other parts of the body in growth during early youth, but afterwards grow more slowly, while sitting height increases rapidly. Every farm boy knows that a corresponding fact is true in regard to horses and some other quadrupeds.

The farmer likewise knows that Indian Corn reaches its most rapid rate of growth in height when it "shoots and tassels," that is, when it assumes its generative functions—reaches puberty, so to speak. But he pays little heed to this botanical law of growth. What concerns him chiefly is the fact that he must not plough close to the corn after this stage in its growth, for fear of injuring the roots and shortening the crop. Certainly the advent of puberty in the boy is a stage of no less importance in his development. But the importance seems to come not from the interesting changes in physical proportions and rates of growth, but from other significant changes which appear at or about this time. The assertion of self, the new and stronger sensations and emotions, with their consequent temptations and allurements, causing often an aversion to school duties and a devotion to sports and exercise of skill and strength, make this a critical juncture in the life of the human being, at which both mind and body trainer may profit with the use of skill and caution, if they do not, like the unwise farmer, "plough too close to the roots." Individual study is here, too, of the utmost value, and generalizations amount to but little in practical work.

A CALISTHENIC AND SETTING-UP DRILL.

HENRY G. BEYER.

U. S. Navy.

(Concluded.)

IV. GROUP: TRUNK FLEXIONS.

All the exercises in this group are performed with hands on hips; their principal object is to exercise the muscles which attach the trunk to the hip-bones.

1. Trunk forward and downward, Bend! Body is inclined forward and downward, back hollow, head extended to throw face forward, legs straight and fully pressed backward at knees, Up! Erect position is resumed and a full breath is taken while doing so.

2. Trunk backward, Bend! Bend body backward from hips as far as that can be done without undue strain and without bending the legs at the knees, Up! Resume erect posture.

3. Trunk right, sideways, Bend! Bend trunk straight toward the right from hips, face looking upward and to the left, standing solid on the ground, Up! Resume erect posture.

4. Trunk left, sideways, Bend! Bend trunk straight toward the left, face looking upward and to the right.

5. Trunk forward and backward, Bend! At Front! bend body forward until at right angles with the long axis of the body; at Rear! bend body backward from hips as far as possible, without undue strain, and from hips without bending legs at knees; at Up! or Three! resume first position.

6. Trunk right and left sideways, Bend! In this the exercises 3 and 4 are combined, beginning with bending the trunk to the right side.

7. Trunk forward, downward and right sideways, Bend! Body and head are first inclined forward, then downward, then gradually to the right and upward, until the erect posture is reached, the head and trunk thus describing a right semi-circle.

8. Trunk forward, downward and left sideways, Bend! The reverse of the preceding.

9. Right body, Circle! Incline body and head at first to the

right and slightly to the rear, then to the left and front, and lastly bring up in the erect posture.

10. Left body, Circle! Same as preceding, beginning with the left.

V. GROUP: BREATHING EXERCISES.

The object of the exercises comprised in this group is to bring about an enlargement of the chest-cavity or the thoracic cavity, by exercising and strengthening the muscles of inspiration and expiration, or, in plain language, the muscles which aid in breathing, in order to provide room for the fullest possible expansion and contraction of the lungs, and to create ample room for increased heart's action brought about by work. Before an increased lung-capacity can be obtained, we must aim at first producing a greater chest-capacity and chest-mobility. The various arm-movements which are made at the same time, are done, not so much to afford exercise for the muscles that move the arms themselves, as for the purpose of aiding the inspiratory muscles to expand the chest while the lungs are being inflated and for the further purpose of removing any- and every-thing having a tendency to compress the chest and impair the fullest possible expansion of the lungs.

1. Arms sideways, Raise! Raise arms sideways, at the same time rise on toes and take a full breath. Maintain this attitude for two seconds while the instructor counts: Two! Three! and at Four! or Down! bring arms obliquely down in rear and breathe out, returning heels to the floor.

2. Arms forward, Raise! Describe complete forward circle with both arms, rest two seconds while arms are overhead, then lower arms obliquely backward and heels to the floor.

3. Arms overhead, Raise! Arms are raised overhead; right foot forward, Step! Take a deep breath, hold it for two seconds and breathe out while lowering arms rearward and resuming first position.

4. Arms overhead, Raise! left forward, Step! Same as preceding.

5. Arms overhead, Raise! right backward, Step! Same as preceding.

6. Arms overhead, Raise! left backward, Step! Same as preceding.

VI. GROUP: THIGH EXERCISES.

1. On toes Rise and Squat! Rise on toes and slowly lower the body by flexing all parts of the lower extremities and until the

heels almost touch the buttocks; at Up! or Three! rise just as slowly and gradually to resume first position.

2. On toes, Rise, Squat and Spring! The same as preceding exercise, but performed more quickly and done with a spring.

3. On toes, Rise, Squat and Spring! Execution same as preceding except when squatting, squat several times without raising body entirely and without feet leaving the ground; at Up! or Three! rise to first position.

4. Right forward, Lunge! Step boldly forward, plant right foot squarely on the floor, stand solidly on ground with left foot to be kept at right angles to the right foot, entire sole in contact with floor, head and body erect. At Bend! bend right leg until it forms a right angle with thigh; maintain erect position of head and trunk. At Two! straighten out the leg, and at Three! resume first position.

5. Left forward, Lunge! Execute as preceding on left side.

6. Right sideways, Lunge! As preceding.

7. Left sideways, Lunge! Same.

8. Right sideways, Step! right and left sideways, Bend! Stand in straddle and bend body from hips first to the right then to the left side, keeping eyes looking in opposite direction; at Three! resume first position with a jump; bring both feet together at one time.

9. Left sideways, step, forward and backward, Bend! Bend body from hips, first forward, head looking straight forward, and then bend body backward; at Three! or Up! resume first position with a jump.

All the above exercises are to be performed with hands on hips.

VII. GROUP: STRETCHING EXERCISES.

1. Right forward, Step! arms overhead and forward, Bend! Body is to be thrust forward and left side stretched as much as possible; at Three! resume first position.

2. Left forward, Step! arms overhead and forward, Bend! Execute as preceding with regard to right side.

3. Right backward, Step! arms overhead and backward, Bend!

4. Left backward, Step! arms overhead and backward, Bend!

5. Arms overhead, right Balance! Arms extended, body bent forward and held at right angles to legs, then left leg is extended straight to the rear and held in line with the body; toes of left leg point straight to rear; at Four! resume first position.

6. Arms overhead, left Balance! Execute same as preceding on left leg.

7. Arms overhead, right backward, Balance! Bend body backward from hips, extend left leg forward, keep in line with body; at Four! resume first position.

8. Arms overhead, left backward, Balance! Stand on left leg and execute as preceding.

VIII. GROUP: ARM OR STRIKING EXERCISES.

During the exercises comprised in this group, the men stand at "right half Face," arms close to chest and hands tightly closed opposite nipples. The instructor marks the movements by counting One! for the stroke and Two! for withdrawing the hands to their starting point; at Halt! arms are dropped.

1. Right forward, Strike (both arms)!
2. Left forward, Strike!
3. Straight forward, Strike!
4. Alternately right and left forward, Strike!
5. Right upward, Strike!
6. Left upward, Strike!
7. Straight upward, Strike!
8. Alternately right and left upward, Strike!
9. Right outward, Strike!
10. Left outward, Strike!
11. Both arms outward, Strike!
12. Alternately outward, Strike! First right and then left arm.
13. Hands on shoulders, elbows sideways, sideways, Strike!
14. Hands on shoulders, alternately outward, Strike! Right, left, etc.
15. Hands on shoulders, elbows to the front, forward, Strike!
16. Alternate right and left, same as No. 14.
17. Hands on chest and downward, Strike! First down on right, then on left side, and finally straight down in front.
18. Hands on shoulders, elbows to the front, downward and backward, Strike! Throw fists forward, downward, backward and upward in rear, bending body at the same time to aid in the movement; at Two! the starting position is resumed.

HISTORY OF PHYSICAL TRAINING IN NEW YORK CITY AND VICINITY IN THE YOUNG MEN'S CHRISTIAN ASSOCIATIONS.*

J. GARDNER SMITH

New York City.

The subject assigned to me is one which has been under the observation of its originators from the beginning until today. The Young Men's Christian Association, although not fifty years old in these United States, has grown into a powerful organization. This growth has been largely a healthy growth since the last gun was fired, at Petersburg, in the great Civil War. When Sir Geo. Williams originated the Young Men's Christian Association in London, June 6th, 1844, he little thought of the strides which his little organization would make within half a century. From its first inception in this country in Montreal, November 25th, 1851, in Boston, December 29th, 1851, and in New York a few weeks later, till after the war, the Association did not begin to realize its possibilities. Its methods comprised a few little rooms, a library, prayer meetings, Bible class and conference.

When the first suggestions were made towards a broader development, new features were added very cautiously. Mental educational advantages were looked upon more favorably than the physical. As we have seen or doubtless will see this evening, the idea of scientific bodily training up to this time was a conception without definiteness, even in the schools, colleges and higher universities. The book worm was rather proud of his face and it seemed as though Cicero was wrong when he said, "by no other way can men approach nearer to the Gods, than by conferring health upon men." But few men had this thought in mind when the first gymnasium was opened. "The gymnasium was a worldly wicked place." said some. "Bowling alleys were annexed to the saloons." said others. To make these a part of the Young Men's Christian Association, some good people thought, would be demoralizing to the highest aims of the Association. Others said, "Let us use these means to induce young men to come under the influence of the Association." Very few had Cicero's conception of the value of physical training as a real factor in Association work. In New York City, in 1869, the 23rd Street Branch, then the parent Association, erected its present building at the corner of 23rd Street and Fourth Avenue.

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*Delivered before the Physical Education Society of New York and Vicinity, October, 1897.

The model from which that gymnasium room, about 60x60 feet, was fitted up, may be seen at 125th Street, near Fifth Avenue, at the store of Mr. Wm. Wood. This gymnasium was fitted with all the modern apparatus. The horse, crude in detail, ungainly in form, reminding one more of the conventional Harlem goat, was adopted as a popular piece of apparatus. This with the parallel bar, ladders of various inclinations, were handed down as tried and approved by our good friends, the Germans. The horse had four legs without castors, and the parallel bar was about 20 feet long, and fastened securely to the floor. Breast bars were there 20 feet long. The horizontal bar was a combination vaulting bar encased between two wooden boards, which latter were fastened securely to wooden posts. These boards were bored every two inches and the bar was raised and lowered by a pin through them and the end of the bar. Flying rings and traveling rings were used about as to-day, except that they were more cumbersome. A striking bag weighing 50 pounds, more or less, was suspended from the ceiling. A spring board about 5x10 feet resting upon wooden bars at either end, and these about 10 feet long resting in turn upon wooden posts or pedestals, occupied a large floor space. A high jumping board was similarly arranged, except that one end rested upon the floor. This was used mainly for a standing or running high jump. I remember very distinctly in January, 1885, an effort to jump over the string from that board, which resulted in a land on the back of the head of the jumper, and confusion of ideas for about three weeks. Mats made of excelsior (which are not just what the name implies) were supplied for the apparatus, wrestling, tumbling, etc. Some iron dumb-bells and a few wooden bells were used.

Mass class work was first organized in 1869. The members would line up, march around the room and stop at certain spots indicated by painted circles upon the floor. The number of men in the classes greatly exceeded the expectation of the most sanguine. As many as 160 men were in line at one time. As the enthusiasm of a new idea wore away the attendance remained for years at 50 to 80 men. After the mass class drill when there were present proficient workers, the class was divided into two or more sections for work on the heavier apparatus.

Beside the heavy ordinary apparatus, the double trapeze, and the flying trapeze, attracted a certain element with circus tendencies. The double trapeze was brought into this city by Segrist Bros. from France in 1852, when they performed in the hypodrome which was located on the present site of the Fifth Avenue Hotel. In 1862, Mr. Leotard, another Frenchman, introduced the flying trapeze at the old academy of music. For nearly twenty years these pieces of apparatus were used at the 23rd Street Y. M. C. A. gymnasium. It was found, however, that in the work of the Association for the general improvement of young men, the influence of this element upon the membership was more detrimental than the benefit derived by the performers. As a consequence these pieces of apparatus are not often found to-day. For the same reason tumbling has been restricted.

In 1872, Prof. Wm. Wood, while going up the Sound on the steamer Bristol, was watching the never ceasing movement of the machinery when the thought came to him, "Why not use the action of the driving piston for a chest machine." In a short time the crude box pulley weights, eight of which were at 23rd Street, were transformed to a pulley weight with a single stationary rod, upon which a cylinder rose and fell, under a double pulley that was adjusted to carry this cylinder weight stand steadily and accurately. From this developed the Dr. Sargent machine and the present nicely adjusted pulleys of various manufacture.

Much credit is due Prof. Wood, who is a veteran worker of 80 years next December, for his faithful work from 1869 to 1889, at the 23rd Street building, and in his private gymnastic work for 30 years previous at Chambers Street, Crosby Street, 6th Avenue and 22nd Street and Broadway.

In 1880 the Brooklyn Association projected its beautiful gymnasium, and Prof. J. Douglas Andrews for many years worked faithfully as its instructor. There the more modern apparatus was introduced, but the circus performer was not restricted for another decade. With Prof. Andrews came the bar-bell, which he imported from Major Barnjum. Prof. Andrews formulated many exercises with this apparatus, and with the hand rings which form popular features of class work at the present time. In 1885 the New York Association organized its German Branch Physical Department and the Young Men's Institute on the Bowery, which latter was directed by the writer from 1885 to 1888. During the winter of 1885-86 at the Young Men's Institute, there was organized a class of leaders trained specially to teach sections of men in class, on the heavier apparatus. This became popular as it interested the best element and enabled a large number of men to be taught at the same hour. The sections were limited to eight or ten men. During 1886-87 this leaders' training class grew until in the fall of 1888, under the direction of Dr. Thos. M. Bull, who succeeded the writer as Director at the Young Men's Institute, a regular course in Anatomy, Physiology and First Aid to the Injured was taught by lectures once each week. At the same time a similar class was organized by the writer, at the Harlem Branch, 5 West 125th Street, teaching the same topics, and in 1889 also Theory and Practice of Gymnastics. Since this time certain members at the latter branch, who have passed satisfactory examinations in these subjects and are active members of the branch, have received annually official appointments as gymnasium leaders. Today this feature, the training of leaders, is prominent in nearly all the leading associations and branches, not only in New York City and vicinity, but throughout the United States.

Up to 1885 some few muscle measurements of men had been taken at the request of members. At the Young Men's Institute, however, the first regular blank form, including measurements and a thorough physical examination of the men, was instituted. This system was introduced during the winter of 1885-86 at the 23rd Street branch by Dr. Luther Gulick, then a student of New York University Medical Department. This has developed from a very meagre form, with a card given to the member showing a part of the examination, to regularly printed forms of three sizes, issued by the International Committee for use throughout the country. These forms are kept on file and the main points written in a book containing a chart similar to that of Dr. D. A. Sargent of Harvard, and a prescription of exercises with some valuable hints regarding bodily training, also the names of the principal groups of muscles with exercises necessary for their development, and half-tone cuts which are numbered to correspond with these directions. The first paper presenting the physical work before the International Convention of the Young Men's Christian Associations was read by the Director of the Young Men's Institute Branch, New York City, at San Francisco, May, 1887. The writer had the honor of being the first regular medical graduate as Physical Director in the Y. M. C. A. in March, 1886, being then at the Young Men's Institute, and of seeing the majority of the associations and branches of

New York City and vicinity under medical supervision since that date. In 1886 the Greenpoint (Brooklyn) gymnasium was opened.

In 1887 the East 86th Street branch organized its physical department. Their building was burned in 1896, and a spacious and substantial structure erected in 1897, now open with all the modern appliances. Through the generosity of Mr. Cornelius Vanderbilt, the Railroad Men's Building at the Grand Central Station was built and equipped in 1887, and enlarged in 1896. In 1888 the Harlem Branch was opened and thoroughly equipped. The Harlem Branch followed the lead of the Brooklyn Association in supplying a swimming pool, shower and needle baths and an elevated running track, which was one of the first having curved inclined corners. Shower and needle baths were used at the Young Men's Institute, New York, in 1885.

In 1889 the Eastern District Branch, Brooklyn, opened its gymnasium; in 1890, the Bedford Branch; in 1892, the Washington Heights, 55th Street, New York; in 1893, the 26th Ward, Brooklyn; in 1896, the largest and best equipped Young Men's Christian Association Gymnasium in the world was opened at 57th Street, near 8th Avenue. This West Side Branch has a gymnasium for men and a smaller one for boys, and is admirably adapted to the modern methods of work. Mt. Vernon, Yonkers, Newburgh, Sing Sing, Nyack, Jersey City, Newark, Orange, and other towns have gymnasiums and other means of physical training, such as athletic grounds, and outing clubs of various forms, including bicycle, boating, tennis, etc. All these associations are operated on the same general plan as those in New York City. The Association does not seek to develop athletic or gymnastic sport as such, but to use both in the physical improvement of its members. The game known as basket ball has become very popular. It was originated at the Y. M. C. A. training school, Springfield, Mass., by Mr. Jas. Nasmith, in January, 1892. For the past three years, interest in this game has been steadily increasing.

During the past two years basket-ball league games have been played in New York and Brooklyn. The doubtful advantage of such a league led the New York Association to abandon it for this season and use the game as it was originally intended, for recreation merely. In base-ball and bowling leagues and tournaments this has been the universal outcome. The various gymnasiums have a membership of from 200 to 800, thus necessitating such methods as will reach the greater number of members. The object of the physical department has been the all-round improvement of young men under a wholesome influence. The tendency during the past fifteen years, especially, has been to encourage methods which will reach the greater number of members. By graded class instruction, which has been carried on for the past ten years, individual instruction by leaders and assistants, and by lectures, the great mass of men are encouraged to work for their own bodily improvement and mutual benefit. The greatest good to the greatest number has been, and always will be, the aim of the physical department of the Young Men's Christian Association.

A BRIEF RESUME OF QUETELET'S "A TREATISE ON MAN" (Continued).

WM. W. HASTINGS,
Lincoln, Neb.

In Book III Quetelet discusses "The Development of the Intellectual and Moral Qualities of Man."

Chapter I is devoted to "Development of Intellectual Faculties."

"Tragic talent is developed earlier than comic. All things being equal, it is between the 30th and 50th years that the greatest number of standard dramatic works have been produced in France. That is the period when imagination and reason are most active; and by a singular contrast it is also about the same age that mental alienation is most frequent and the cure of it most difficult. The intellectual life of man and the diseases of his mind especially develop themselves about the age of 25 years, when physical development has almost ceased; man, indeed, at this age is almost fully developed in stature, weight and strength, and it is at this time that the greatest tendency to crime is manifested. Again, it is remarkable from another comparison, viz.: that the period of reproduction falls between the 25th and 30th years. Thus, the average man between 25 and 30 years of age has completed his physical development and this is also the period when his intellectual life is most vigorous.

Of the total number of the insane, women form 1-3 more than men. Women are most subject to the attack in July; for men this month is in the third rank. With a reference to civil statistics we find that more than ¼ of the men are bachelors. As to age, we find that mental diseases develop themselves in men between the 30th and 39th years, and in women between the 40th and 49th years. As to the nature of the affection, melancholy predominates in women and the tendency to homicide in men. The same contrast is found in the cures, deaths and relapses.

Men give a decided preference to cutting instruments and firearms, while women destroy themselves by poison, fall from a great height or asphyxiate themselves by means of burning charcoal."

This is accounted for by the difference between masculinity and femininity. The timidity of women shrinks from violent means of inflicting death. The effect of age upon the tendency to suicide and upon the methods employed in self-destruction is illustrated by the comparative statements of the following table:

Nature of crimes	Under 16 years	16 to 21	21 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 80	80 and upwards
Violation on children under 15 yrs.	4	120	71	96	73	39	34	45	22	18	26	17	21	2
House robbery	54	965	845	766	528	351	249	207	112	56	61	34	14	......
Other thefts	332	2,479	2,050	2,292	1,716	1,249	1,016	707	433	263	190	98	65	10
Violation and seduction	9	155	156	148	99	38	40	27	9	5	3	1	2	.....
Parricide	6	13	12	13	6	3	2	1	4	2	......	......	......	......
Wounds and blows	6	180	300	359	219	129	101	95	55	35	23	10	7	1
Murder	15	139	198	275	172	103	84	49	48	30	25	17	9	......
Infanticide	1	40	99	134	76	44	30	8	7	1	8	4	2	......
Rebellion	5	67	129	156	115	57	51	35	29	16	16	5	5	.....
Highway robbery	21	80	111	149	107	60	62	46	22	21	8	6	4	......
Assassination	10	90	144	203	183	100	104	89	53	32	24	13	15	1
Wounding parents	2	47	64	73	72	40	30	16	8	2	1	......	.....	......
Poisoning	5	6	17	30	27	15	20	12	6	2	5	4	1	......
False witnessing and suborning	2	23	46	48	44	42	42	35	23	15	15	11	7	......
Various misdemeanors	8	86	202	276	312	244	207	185	129	78	75	28	28	2

A curious difference is presented here in the tastes of younger and older men as to methods of self-destruction. Men from 20 to 40 seek death by violent means, while men from 40 to 70 prefer the quieter method of strangulation. The comparative tendency to suicide in various countries is indicated by the table of M. Balbi:

France, 1827, 1 suicide to	20,740	Inhabitants
Prussian Monarchy, 1 suicide to	14,404	Inhabitants
Austrian Empire, 1 suicide to	20,900	Inhabitants
Russian Empire, 1 suicide to	49,182	Inhabitants
United States, New York, 1 suicide to	7,797	Inhabitants
United States, Boston, 1 suicide to	12,500	Inhabitants
United States, Baltimore, 1 suicide to	13,656	Inhabitants
United States, Philadelphia, 1 suicide to	15,875	Inhabitants

Suicides present in both sexes a very remarkable contrariety according to results furnished by tables. Thus, the month of April, attended with the greatest number of suicides among men, is only so in the 5th degree with women; with the latter, August occupies same rank as April for men. Of the men it is bachelors who form the largest number; of the women we find the greatest number among those engaged in the bonds of matrimony. The influence of concubinage on the production of voluntary death among women is almost treble.

In men it is from 35 to 45 that the greatest number of suicides takes place; in women it is from 25 to 35.

Chapter III., p. 82. Development of the Propensity to Crime:

"There is a ratio, nearly invariably the same, between known and tried offences, and the unknown sum-total of crimes committed; these conclusions, based upon the data contained in the tables given, would be valid for that country* as to crime in its entirety. It is possible to predict the number of crimes which will be committed each year, the kinds of crimes which will predominate, the ages favorable to the commission of various crimes, the comparative prevalence of crime among men and women, and other phenomena with a marked degree of certainty.

*Note. Tables not otherwise distinguished by Quetelet as to source of data are supposed to have been collated in France.

Age	Suicides at Berlin	Suicides at Paris		Suicides at Geneva	Population divided according to age
		By Shooting	By Suspension		
10 to 20 yrs.	224	61	68	53	312
20 " 30 "	251	283	51	252	188
30 " 40 "	96	182	94		160
40 " 50 "	156	150	188	474	136
50 " 60 "	146	161	256		100
60 " 70 "	77	126	235	221	68
70 " 80 "	41	35	108		30
80 and upwards	9	2	0		6
Total . .	1,000	1,000	1,000	1,000	1,000

TABLE OF QUETELET FOR 1830–31.

Individual Age	Crimes against		Crimes against property in 100 crimes	Accused		Women to 100 men
	Persons	Property		Men	Women	
Under 16 yrs.	27	214	88	211	30	14
16 — 21	394	1,888	83	1,911	371	19
21 — 25	643	1,708	72	1,913	438	23
25 — 30	758	1,872	70	2,185	445	20
30 — 35	662	1,741	72	2,004	399	20
35 — 40	376	1,088	74	1,167	297	26
40 — 45	279	725	72	800	204	25
45 — 50	200	643	76	692	151	21
50 — 55	161	426	73	487	100	21
55 — 60	91	245	73	270	66	24
60 — 65	55	147	73	162	40	25
65 — 70	31	100	77	113	18	16
70 — 80	29	58	66	67	20	30
80 and upwards	5	1	14	6	1	16
All ages	3,712	10,356	74	11,988	2,580	22

The results given above agree with tables for 1826, '27 and '28, showing that the laws governing crime are constant.

According to Quetelet the average age for crime is 25. Other more modern authorities consider 16 to 25 years, still others, 20 to 30 years the period of criminal development. Statistics for the United States seem to show that 20 to 25 is the period when this tendency to crime is greatest; it is also the period of the attainment of maturity in stature, weight and strength; it is the period of sensuality, and it is followed immediately by the period of reproduction, 25 to 30, and that of the most vigorous intellectual life; it is the period of an unsettled realization of power. This vigor must be spent somewhere and in some way. Lack of rational self-direction, of healthful occupation, have most frequently led to the expending of this energy in sin and crime.

1826–27.

Apparent motive for crime	Accused for				Total
	Poisoning	Murder	Assassination	Incendiary	
Cupidity, theft	20	39	237	66	362
Adultery	48	9	76	....	133
Domestic dissensions	48	120	131	34	333
Debauchery, jealousy	10	58	115	37	220
Hatred, revenge and divers motives	23	903	460	229	1,615
Total	149	1,129	1,019	366	2,663

QUETELET'S CONCLUSIONS ON CRIME.

1. "Age (or the term of life) is undoubtedly the cause which operates with most energy in developing or subduing the propensity to crime.

2. This fatal propensity appears to be developed in proportion to the intensity of the physical power and passions of man; it attains its maximum about the age of 25 years, the period at which the physical development has almost ceased. The intellectual and moral development, which operates more slowly, subsequently weakens the propensity to crime, which still later diminishes from the feebler state of the physical powers and passions.

3. Although it is near the age of 25 that the maximum in number of crimes of different kinds takes place, yet this maximum ad-

vances or recedes some years for certain crimes, according to the quicker or slower development of certain qualities which have a bearing on those crimes. Thus man, driven by the violence of his passions, at first commits violation or seduction, almost at the same time he enters on the career of theft, which he seems to follow as if by instinct, until the end of his life; the development of his strength subsequently leads him to commit every act of violence,—homicide, rebellion, highway robbery; still later, reflection converts murder into assassination and poisoning. Lastly, man, advancing in the career of crime, substitutes a great degree of cunning for violence, and becomes more of a forger than at any other period of life.

4. The difference of sexes has also a great influence on the propensity to crime. In general, there is only one woman before the courts to four men.

5. The propensity to crime increases and decreases nearly in the same degree in each sex; yet the period of maximum takes place rather late in women and is near the 30th year.

6. Woman, undoubtedly from her feeling of weakness, rather commits crime against property than persons; and when she seeks to destroy her kind, she prefers poison. Moreover, when she commits homicide, she does not appear to be proportionally arrested by the enormity of crimes which in point of frequency take place in the following order: infanticide, miscarriage, parricide, wounding of parents, assassination, wounds and blows, murder; so that we may affirm that the number of the guilty diminishes in proportion as they have to seek their victim more openly. These differences are, no doubt, owing to the habits and sedentary life of woman; she can only conceive and execute guilty projects on individuals with whom she is in constant relation.

7. The seasons in their course exercise a very marked influence on crime; thus, during summer, the greatest number of crimes against persons are committed and the fewest against property. The contrary takes place in winter.

8. It must be observed that age and the seasons have almost the same influence in increasing or diminishing the number of mental disorders and crimes against persons.

9. Climate appears to have some influence, especially on the propensity to crime against persons. This observation is confirmed at least among the races of southern climates, such as the Pelasgian race scattered over the shores of the Mediterranean and Corsica on the one hand, and the Italian mixed with Dalmatians

and Tyrolese on the other. We observe also that severe climates which give rise to the greatest number of wants, also give rise to the greatest number of crimes against property.

10. The countries where frequent mixture of the people takes place, those in which industry and trade collect many persons and things together and possess the greatest activity; finally, those where the inequality of fortune is most felt, all things being equal, are those which give rise to the greatest number of crimes.

11. Professions have great influence on the nature of crimes. Individuals of more independent professions are rather given to crime against persons, and the laboring and domestic classes to crime against property. Habits of dependence, sedentary life, and also physical weakness in woman produce the same results.

12. Education is far from having so much influence on the propensity to crime as is generally supposed. Moreover, moral instruction is very often confounded with instruction in reading and writing alone, and this is most frequently an accessory instrument to crime.

13. It is the same with poverty; several of the departments of France, considered to be the poorest, are, at the same time, the most moral. Man is not driven to crime because he is poor, but more generally because he passes rapidly from a state of comfort to one of misery, and an inadequacy to supply the artificial wants which he has created.

14. The higher we go in the ranks of society, and consequently in the degrees of education, we find a smaller and smaller proportion of guilty women to men. Descending to the lowest orders, the habits of both sexes resemble each other more and more.

15. Of 1,129 murders committed in France during the space of four years, 446 have been the result of contentions in taverns, which would tend to show the fatal influence of drink.

16. In France, as in the low countries, we enumerate annually one accused person to 4,300 inhabitants nearly, but in the former country 39 in 100 are acquitted and in the second only 15, yet the same code was used in both, but in the low countries the judges performed the office of jury. Before simple correctional courts and simple police courts, where the committed were tried by judges only, the results were very nearly the same for both countries.

17. In France crimes against persons were about 1-3 the crimes against property, but in the low countries they were about ¼ only. It must be remarked that the first kind of crimes lead

to fewer condemnations than the second, perhaps because there is a greater repugnance to apply punishment, as the punishment increases in severity."

Book IV. deals with "The Properties of the Average Man, of the Social System, and of the Final Advancement of this Study."

The determination of the average man is important to the fine arts and literature. Literature should be the expression of society as it is and as it was in past ages. To the correct understanding of the types of today, the study of the various shades of moral and physical qualities of man is vitally essential. The highest perfection of art consists in the truest interpretation of nature.

"Of the Average Man Considered in Reference to the Natural and Medical Sciences," p. 98:

"The constitution of the average man serves as a type to our kind. Every race has its peculiar constitution, which differs from this more or less, and which is determined by the influence of climate, and the habits which characterize the average man of that peculiar country."

"With Respect to Philosophy and Morals:"

"The average man of any one period represents the type of human development for that period." He is necessitated by time and place; his qualities are developed in due proportion, in perfect harmony, alike removed from excess or defect of any kind, so that in the circumstances in which he is found he should be considered as the type of all which is beautiful, of all which is good.

If human nature were stationary and not susceptible of amelioration, it is evident that the average man would always continue invariable. But the average man is the creation of the influence of great men. The great man is the harmonious union of particularity and generality, of individuality and universality. He is necessitated. "Entire history, not that of one people or one epoch only, but that of all epochs and all human nature, is represented by the great men. Thus, give me the series of all the known great men, and I will give you the known history of the human race." Great events, like great men, are necessitated.

"With Reference to Politics":

The measure of the state of civilization at which a nation has arrived is found in the mode in which its revolutions are effected, for the action is equal to the reaction.

Chapter II. On the Ultimate Progress of our Knowledge of the Laws of Human Development.

FINAL CONCLUSIONS.

1. "The regular and periodic causes, which depend either on the annual or diurnal period, produce effects on society which are more sensible, and which vary within wider limits, than the combined non-periodic effects annually produced by the concurrence of all other causes operating in society; in other terms, the social system, in its present state, appears to be more dissimilar to itself in the course of one year, or even in the space of one day, than during two consecutive years, if we have reference to the increase of population.

2. The diurnal period seems to exercise a somewhat stronger influence than the annual period, at least so far as births are concerned.

3. The annual period produces more sensible effects in the country than in towns; and this appears to be the case with those causes in general, which tend to modify the facts relating to man.

4. The price of grain has a very marked influence on the elements of the social system; and although we still want sufficient data to appreciate the comparative values of this influence, yet we may, very safely, range it among the causes operating most energetically.

5. If we wished to class, according to our observations, the elements relating to man in an order which should indicate the degree of variation to which they are subject, we should find the succession as follows, commencing with the least variable: The stature of man; the repression of crime or the degree of severity with which it is punished; the birth; the propensity to crime, or the facility with which it is committed; deaths; marriages; receipts and expenses of the treasury; and finally, the prices of grain.

From the preceding, two general conclusions are derived:

1st. Since the price of grain is one of the most influential causes operating on the mortality and reproduction of the human species, and since, at the present, this price may vary within the widest limits, it is the province of the foresight of governments to diminish as much as possible all the causes which induce these great variations in prices, and consequently in the elements of the social system.

2nd. On the other hand, since the crimes which are annually committed seem to be the necessary result of our social organization, and since the number of these crimes cannot diminish without the causes which produce them undergoing a previous modification, it is the province of legislators to ascertain these causes and to remove them as far as possible; they have the power of determining the budget of crime, as well as the receipts and expenses of the treasury. Society prepares crime, and the guilty are only instruments by which it is executed."

FINALLY.

One of the principal facts of civilization is that it more and more contracts the limits within which the different elements relating to man oscillate.

(To be continued.)

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OFFICIAL ANNOUNCEMENTS.

COMMITTEES.

The following committees are hereby appointed:

1. A Committee of Five to name "a permanent Committee of Fifteen to draft definite recommendations for securing a fuller recognition of physical training in elementary, secondary and higher educational institutions"†: Dr. D. A. Sargent, chairman, Dr. Henry G. Beyer, Dr. C. J. Blake, Dr. E. M. Hartwell, Dr. R. W. Lovett.

2. A Committee of Nine to carry out the provisions of the resolutions regarding the unification of normal school work and the certification of teachers of physical training‡: Dr. G. W. Fitz, chairman, Dr. E. H. Arnold, Dr. C. O. Louis Collin, Mr. Christian Eberhard, Dr. L. Gulick, Dr. E. M. Hartwell, Dr. G. L. Meylan, Miss Hope W. Narey, Baroness Rose Posse.

D. A. SARGENT, President.

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* Not completely affiliated. ** Not active.

† American Physical Education Review, June, 1899, page 197.

‡ *Ibid.*, page 188.

CORRESPONDENCE.

To the Editor of the American Physical Education Review:

Dear Sir: — I desire to call your attention to an incorrect statement in the report of the Technical Committee in the June issue of the REVIEW. On page 215 it reads: "After considerable discussion and the presentation of a minority report by Dr. Enebuske, the matter was referred back to the Committee for further consideration and report."

It will be remembered that the Convention voted that the Committee should continue and work out the terminology in the line indicated by the minority report.

Respectfully,
CLAES J. ENEBUSKE.

Boston, September 16, 1899.

[Dr. Enebuske's claim is not supported either by the report of the Secretary of the Convention or by the stenographic report of the discussion. Both agree with the statement in the June REVIEW, that the matter was "referred back to the Committee for further consideration and report."—Ed.]

EDITORIAL NOTE AND COMMENT.

Owing to the Editor's absence from town, a large amount of material for the REVIEW had to be sent by express. This was unfortunately lost in transmission and a number of weeks were occupied in tracing it. The REVIEW has consequently been seriously delayed. This will not, however, result in a delay of the December number as the copy for it will be immediately placed in the hands of the printer.

Members of the Association and subscribers to the REVIEW are requested promptly to notify the Editor of change of address.

Members are also requested to note the change of address of the REVIEW from 6 Acacia Street, Cambridge, to 483 Beacon Street, Boston, Mass.

The preliminary report of Professor Atwater's experiments to determine the value of alcohol as a food has been followed by various articles and letters,* some of which have been of a bitter controversial character. Briefly, Professor Atwater, through his experiments with the special form of respiration calorimeter developed by him and his colleagues, in which all of the food, drink, excretory products, heat and muscular effort of the subject are measured and analyzed with the utmost accuracy, has been able to determine the heat equivalent of the different kinds of food, and especially of alcohol. By experimental studies he is able to show conclusively that alcohol in moderate quantities is practically entirely oxidized in the body and gives rise to muscular energy as do other foods. Upon this basis Professor Atwater makes the claim that alcohol in moderate quantities is a food and not a poison.

Temperance advocates claim that this violates all definitions of the words food and poison, and quote Dunglison, Quain and other lexicographers and writers in support of their statement that any substance which under any circumstances is poisonous to the human body, must be classed as a poison. A definition is thus made not an epitome of the best thought at the time of its formulation, but a crystallization of eternal truth. As such it is deemed capable of blockading the advance of science. That our concepts of the relations of substances to the processes of nutrition in the body are capable of change and must be held tentatively until further experiments can be made, has been conclusively shown by the recent great progress in studies along these lines, although this necessity is persistently ignored by temperance extremists. For example, many of the older studies in nutrition have to be rejected because of their failure to consider the factor of nitrogenous equilibrium. More recent studies are faulty for the reason that, because other substances than alcohol gave rise to the so-called alcohol reaction, alcohol was found in the brain and other tissues where it has since been proved not to exist.

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*Outlook, July 29th and August 19th (best); The School Journal, August 12th; Zion's Herald, New York Tribune, and School Physiology Journal, September, 1899.

Professor Atwater's experiments seem conclusively to prove the falsity of our former conception of alcohol as a substance which not only does not give rise to energy, but actually interferes with the oxidation of other food materials. We now learn that in all probability alcohol by its quicker oxidation contributes to the amount of energy demanded by the body's activity, and thereby diminishes the amount required of the more slowly oxidizing foods. No array of definitions, however imposing, can smother this demonstration. If temperance advocates continue to insist upon founding their cause on a science of physiology which shall be today as it was yesterday, and tomorrow as it is today, their cause must suffer. Beneath temperance, however, is a strong foundation of sociological, economic and moral truth which will cause it to stand firm when their approved text-books of physiology have become literary, as they are now scientific, curiosities.

NEWS NOTES.

New York is making rapid progress in organizing school gymnastics, as will be seen by the following notice of a tournament and rules governing the same:

Department of Education, Boroughs of Manhattan and the Bronx.
146 Grand Street,
City of New York, August 25, 1890.

To Directors of Playgrounds:—

A Gymnasium Tournament will be held on Friday and Saturday, September 1st and 2nd, beginning at 9.30 and 2 o'clock, mornings and afternoons of both days, in Crotona Park, near the Wendover Avenue station of the Third Avenue Elevated Railway.

The tournament will be open to the thirty-two teams of ten each from the several Public School Playgrounds and Open Air Gymnasia maintained during the summer of 1899 by the School Board for the Boroughs of Manhattan and The Bronx. Eight of these teams will contest each morning and afternoon of the two days named.

The special rules governing the contest will be found herewith.

Respectfully,
MAE H. BEATTYS,
J. BLAKE HILLYER,
General Directors, Gymnastic Classes.

SETH T. STEWART,
Chairman, Committee on Play Schools.

RULES GOVERNING GYMNASTIC TOURNAMENT.

I. Each Public School Playground and Open Air Gymnasium will be represented by a team of ten boys, one of whom shall be designated, and shall act, as "leader."

II. Each team of ten, at a time appointed, as per schedule accompanying these rules, shall form in single file, the leader in front, and shall follow its leader in three (3) "turns" each, upon (1) parallel bars, (2) vaulting bar, (3) vaulting buck, (4) combination ladder, and (5) mats.

III. Each "turn" upon a piece of apparatus may contain two or more different movements or exercises.

IV. Each team must perform the same movements in each turn as shown by its leader.

V. Different teams may select different movements.

VI. A "starting point" will be indicated near each piece of apparatus, at which the leader shall stand before beginning each turn.

VII. Each turn by each boy may secure for his team a maximum of four (4) points, one point each for (1) the approach, including position while in single file at the starting point, (2) the execution, (3) the difficulty, and (4) the finish of the movement. The maximum for each turn for the team will be forty (40) points, and for the three (3) turns, one hundred and twenty (120) points on each piece of apparatus. The highest possible total for each team will be six hundred (600) points.

Department of Education, Boroughs of Manhattan and the Bronx.

Programme of Gymnastic Contest, Crotona Park, City of New York, Friday and Saturday, September 1 and 2, 1899.

FRIDAY MORNING, September 1st:

9.30—Exhibition by teams of ten from Public Schools 1 and 2.
10. —Exhibition by teams of ten from Public Schools 7 and 20.
10.30—Special exhibition by teams from Public Schools 120 and 137.
10.45—Exhibition by teams of ten from Public Schools 34 and 42.
11.15—Exhibition by teams of ten from Public Schools 120 and 137.

FRIDAY AFTERNOON, September 1st.

2. —Exhibition by teams of ten from Public Schools 147 and 92.
2.30—Exhibition by teams of ten from Public Schools 75 and 160.
3. —Special exhibition by team from Public School 147.
3.15—Exhibition by teams of ten from Public Schools 105 and 131.
3.45—Exhibition by teams of ten from Public Schools 41 and 80.

SATURDAY MORNING, September 2nd:

9.30—Exhibition by teams of ten from Public Schools 51 and 141.
10. —Exhibition by teams of ten from Public Schools 27 and 135.
10.30—Special exhibition by team from Public School 86.
10.45—Exhibition by teams of ten from Public Schools 151 and 158.
11.15—Exhibition by teams of ten from Public Schools 86 and 121.

SATURDAY AFTERNOON, September 2nd:

2. —Exhibition by teams of ten from Public Schools 82 and 96.
2.30—Exhibition by teams of ten from Public Schools 16 and 107.
3. —Special exhibtion by members of Open Air Gymnasium No. 3.
3.15—Exhibition by teams of ten from Open Air Gymnasia 1 and 2.
3.45—Exhibition by teams of ten from Open Air Gymnasia 3 and 4.

The Physical Education Department of the Dietetic & Hygienic Gazette has been undertaken by Dr. Henry Ling Taylor of New York.

BOOK NOTICES AND BIBLIOGRAPHY.

Handbook of Medical Gymnastics. By Anders Wide, M.D., Lecturer in Medical Gymnastics and Orthopedy in the Royal Carolean Medico-Surgical Institute, and Director of the Gymnastic Orthopedic Institute, Stockholm.

This book was first published in Sweden in 1896; in 1897 two German editions were published, and in 1898 a French edition appeared. The English edition, 368 pages, with 92 illustrations in the text, is published this year by Sampson Low, Marston & Co., in London.

After the writings of Hartelius this book is the first attempt to bring together within the form of a Handbook a summary of the experiences made by Swedish gymnastic physicians and medical gymnasts, and to explain the facts observed in a way consistent with present physiological and pathological views. Before the completion of the book the author has been well aware of the difficulties involved in such a task. Ten years ago, on the occasion of the resignation of Dr. Hartelius from the professorship in Medical Gymnastics in Stockholm, Dr. Wide wrote a sympathetic eulogy over the services of Hartelius, which was printed in the "Tidshrift i Gymnastik" (Stockholm). There he recalled the following words written in 1834 by Peter Henrie Ling "to the Gymnasts of Sweden:" "to be the first to plough an unbroken field is difficult, thereafter to improve it is easier, and last to manage it and take in the harvest is easiest; yet the last craftsman never thinks of the first one, for he reckons only his own labor. The same oblivion awaits also me, that I know; but I pray God that the physicians and educators of the future may one after the other enlarge and improve these, my attempts; for then Gymnastics shall some time regain among Northmen the same significance as they had in the minds of Plato, Hippocrates and Galenus." Wide regarded Hartelius as the first physician who had tried to meet this pious prayer of Ling and who, by being the first to write books on medical gymnastics, had learned how difficult it is "to be the first to plough an unbroken field." Hartelii books were much criticised but nobody appeared to be able to improve them. The recent book of Wide will not escape criticism either, but it is safe to say that it will take considerable time before anybody will be able to essentially improve it. The first 147 pages contain explanation of the technical "modus operandi," describing the various positions, movements and manipulations. The next ten pages give some generalized rules about the administration of medical gymnastics. The remainder of the book is devoted to the specialized indications of movements in various diseases, the most important of which are the following: Diseases of the Organs of Circulation, Diseases of the Respiratory Organs, Diseases of the Digestive Organs, Diseases of the Bladder, Diseases of the Nervous System, Diseases of the Muscles, Constitutional Diseases, Diseases of Bones and Joints.

In comparison with earlier writers, the author of this book rules out certain diseases which the former included among those amenable to gymnastic treatment, as, for instance, certain diseases of the respiratory organs and of the kidneys. On the other hand a marked expansion of the amenableness of other diseases to movement treatment is indicated, as, for instance, traumatic joint affections and certain bladder affections. The gynecological motor therapy is only alluded to in passing, and the reader is referred to specialists upon the subject.

These changes, in the opinion of the reviewer, should be considered as signs that the knowledge of the indications and contraindications of medical gymnastics is advancing to more clearness, and they support the hope that this important subject is gradually ridding itself of the mist of delusions and superstitions which has adhered to it from a time when that was more excusable than now.

In elaborating his material, the author has been obliged to choose, either to write a book thoroughly scientific at the loss of scope and width from a practical point of view, or to write a book, practically useful, by taking cognizance also of such results of experience as are not supported by scientific experimental tests actually made, or as have not so far been put to exact scientific formulation.

The author's preference may be suspected to be in the former direction, but practically he has yielded in the direction last indicated. In the preface the author indicates that he has written his book for both gymnasts and medical students, and throughout he has been faithful to this predetermination. This disarms criticism from an exclusive medical point of view. The reviewer believes that if medical gymnastics is soon to take a generally recognized and natural place in Therapeutics it will be in large extent through the work that has been done and continues to be done by men of that grade of qualification which the author represents.

C. J. E.

A Class Book of (Elementary) Practical Physiology, including Histology, Chemical and Experimental Physiology. By De Burgh Birch, M.D., C.M., F.R.S.E., Professor of Physiology in the Yorkshire College of the Victoria University; Examiner in Victoria University; Additional Examiner in Edinburgh University. P. Blakiston's Son & Co., Philadelphia. Pages 273, figures 62, and index.

This book consists essentially of the laboratory directions to students in the author's college course in elementary practical physiology. The directions are clear and concise, and technical terms are adequately explained. The student is expected to work out results for himself, but when this is impossible, full supplementary instructions and explanations are given.

The histological section occupies 117 pages and contains unusually clear general directions for the use of the microscope, for injecting, staining and mounting specimens as well as detailed directions for the preparation of each organ and tissue. Formulae for stains and solutions are given in full.

The chemical section covering 60 pages, is correspondingly complete, in that it contains directions and illustrations of apparatus for making examinations of food materials and of the fluids and solids of the animal body, both normal and abnormal, including spectroscopic examination of the blood and the Kjeldahl determination of proteid. It contains also a good list of reagents.

The section of experimental physiology occupies 90 pages of directions for the use of physiological apparatus with illustrations and suggestions for their distribution and setting up in the laboratory. The apparatus described is that ordinarily used in an elementary course of practical physiology, including the new sphygmometer of Hill and Barnard for measuring human blood pressure. The ergograph and the phlethysmograph are not mentioned.

The book is eminently a class book of practical physiology and deserves to take a prominent place in elementary classes.

G. W. F.

Suggestions for Primary and Intermediate Lessons on The Human Body. A Study of its Structure and Needs Correlated with Nature Study. By Mrs. Ella B. Hallock, Lecturer on the Teaching of Physiology, Hygiene and Temperance, before the Massachusetts Teachers' Institute. E. L. Kellogg & Co., New York. Pages 194, no index, many illustrations.

This book is a very radical departure from the treatises on physiology common in the schools, which in their effort to teach scientific temperance are forced to introduce technicalities beyond the comprehension of the pupil. Mrs. Hallock's purpose of relating the work to nature study has been so adequately carried out that the book through its comprehensive consideration of animal life, is entitled to take rank as a study of comparative physiology upon a very elementary basis. The child is to be led by comparison of himself and the animals which he can observe in detail to build up a synthetic picture of the human body and its processes; in this the book by its text and illustrations furnishes the teacher with delightful means of guiding him to detailed observations. The illustrations are especially numerous and characteristic. For example, pictures of the noses, ears, eyes, feet, etc., of various animals are given, and the teacher is to make use of the child's natural curiosity to lead him to discover their owners. In this way the interest and independence of observation are assured. Physical movements, with illustrations of simple exercises, suggestions with regard to food, clothing, ventilation, rest, sleep and study, and other hygienic details are introduced when possible.

The last chapter is devoted especially to the nature and uses of alcohol. G. W. F.

Respiratory Exercises in the Treatment of Disease, Notably of the Heart, Lungs, Nervous and Digestive Systems. By Harry Campbell, M.D., B.S., Lond., Fellow of the Royal College of Physicians, London, Physician to the North-West London Hospital, and to Hospital for Diseases of the Nervous System, Welbeck Street. Wm. Wood & Co., New York. Pages, 200, index, 4 pages, no illustrations.

Dr. Campbell discusses the following main topics in separate chapters: I, the Elasticity of the Lungs; II, Intra-Abdominal Tension; III, The Elasticity of the Thoracic Cage; IV, The Factors Determining the Mean Size of the Chest; V, The Mobility of the Thoracic Cage; VI, The Pleurae and Their Functions; VII, Inspiratory and Expiratory Force; VIII, The Respiratory Forces; IX, Modes in which the Thorax is Enlarged; X, Breathing in Singers; XI, Vital Capacity; XII, Secondary Effects of the Respiratory Movements; XIII, Influence of The Respiratory Movements on The Circulation of the Blood; XIV, The Influence upon The Circulation, etc., of Modifications in the Density of The Outer Air; XV, Influence of The Respiratory Movements on The Circulation of Lymph; XVI, Physiological Modifications in The Respiratory Movements; XVII, Normal Modifications of The Respiratory Movements; XVIII, Impediments to the Respiratory Movements; XIX, Hyperoxygenation of The Blood; XX, The Various Kinds of Breathing Exercises; XXI, Respiratory Exercises in Diseases of the Lungs; XXII, Respiratory Exercises in Emphysema; XXIII, Respiratory Exercises in Heart Disease; XXIV, Respiratory Exercises in The Treatment of Nervous Diseases; XXV, Respiratory Exercises in the Treatment of Digestive Disorders; XXVI, Respiratory Exercises in Other Diseases.

The topics are discussed in short, well-defined chapters. Fairly copious references to bibliography are given in foot-notes. The author takes very decided ground on many disputed points and thereby adds to his resume of literature much valuable criticism. In many cases the discussion suggests that the book is planned for the medical practitioner, but from its breadth of treatment and general suggestiveness it must prove of value to all interested in practical examinations of respiration conditions.

G. W. F.

Monatsschrift fur das Turnwesen. Vol. XVIII. Berlin, 1899 (continued from p. 258).

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Deutsche Turn-Zeitung. Vol. XLIV. Leipsic, 1899 (continued from p. 259).

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Revue Internationale de Pedagogie Comparative, June, 1899, La Gymnastique chez les Anormaux, Dr. Picard. Dr. Picard expresses his belief that the Whiteley Exerciser is superior to any other for the development of paralytic and feeble children. The points which lead him to this conclusion are its lightness, adaptability to strength, simplicity of operation, cheapness and general effectiveness.

The Boston Medical and Surgical Journal, August 31 and September 7, 1899. The Effects of Training. The Study of the Harvard University Crews, by Eugene A. Darling, M.D.

PUBLICATIONS RECEIVED.

Mind & Body, Milwaukee, Wis., June, July, August, 1899.

The School Journal, New York, N. Y., Vol. LIX, No. 4.

Revue Internationale de Pedagogie Comparative, Paris, France.

The Gymnasium, organ of the National Physical Education Society, England, London, England.

La Gymnastique Francaise, Paris, France.

Dietetic & Hygienic Gazette, 1899.

Le Stand, Paris, France.

The School Weekly, Chicago, Ill.

Amerikanische Turn-Zeitung, Milwaukee, Wis.

Professor Atwater's Experiments (Abstract of a report presented to the Middletown Scientific Association, June 13, 1899, by Professor W. O. Atwater, of Wesleyan University), The Outlook, July 29, 1899.

Boletin de Ensenanza Primaria, Montevideo, Uruguay, March and April, 1899.

Nouveaux Instruments de Anthropometrie, Georges Demeny, Paris, 1890, 12 pp.

Plan d'un Enseignement Superieur de L'Education Physique, Georges Demeny, Paris, 1899, 30 pp.

Resume de cours Theoriques sur L'Education Physique, Georges Demeny, Paris, 1886, 185 pp.

L'Education Physique, Bulletin Trimestrid du Cercle de Gymnastique Rationelle, No. 1, 1881, 32 pp., Nos. 7 & 8, 1882, No. 15, 1886, No. 14, 1885.

Effets Physiologiques et Philosophiques de la Gymnastique Rationelle, M. Emile Carra & Georges Demeny, 1880, 29 pp.

Recherches sur la Forme du Thorax et sur le Rapport Entre la production de Travail Musculaire et la Mecanisme de la Respiration des sujets entraines, by Georges Demeny, April, 1889, 4 pp.

Tidskrift i Gymnastik, Stockholm, Sweden, 1875 to 1889 (files nearly complete), L. M. Torngren.

From Prof. L. M. Torngren, Stockholm, Sweden, the following reprints:

- Gymnastisk ofversigt, 1891, pp. 425-430.
- Minnestal ofver Per Henrik Ling d. 15 Nov. 1896. 21 pages.
- Till Sveriges gymnastiklarare, 6 pp.

De Vanligaste Felen under Faktofningar Samt Nogot om Faktningens Betydelse, pp. 18.

Redogorelse for Det Andra Allmanna Gymnastiklararemotet I. Stockholm, April, 1888, 120 pages.

Gymnastikofningarna I de Allmanna Laroverken., April, 1890, 61 pages.

Den Spannbojande Rorelseslagten, 21 pages.

Nagra Iakttagelser Angaende Den Kroppsliga Utbildningen vid Uppfostran I Engelska Skolor, 1890, 52 pages.

Om Legemets Grav til Opdragelsen, 20 pages.

Gymnastikfesten I Stockholm, 1891, 79 pages.

Charities, New York, N. Y., Vol. III, No. 11. (Out Door Recreation League.)

U. S. Department of Agriculture, Bulletin No. 63. A New Respiratory Calorimeter, and Experiments on the Conservation of Energy in the Human Body, by W. O. Atwater, Ph.D., and E. B. Rosa, Ph.D., Washington, 1899.

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CONDITIONS AND NEEDS OF PHYSICAL EDUCATION.*

G. W. FITZ,
Boston.

THE present position of physical education offers much of encouragement. Educators and teachers are becoming more generally appreciative of the educational value of exercise. Physicians and parents recognize its hygienic value in promoting growth and in producing that indefinable quality which characterizes the physically active, and which we call vigor. School system after school system is placing physical training in its curriculum. It would seem as though now were the time when the physical director and teacher of gymnastics could look forward with confidence to coming into his own.

But the present situation contains a threat as well as a promise. The growing demand for the teaching of physical training has been more than met by the rapidly increasing supply of trained teachers. With the consequent rise of competition have come those rivalries of schools, which threaten the unity of purpose and heartiness of coöperation upon which our future progress rests. The need for physical training is so great and so varied in its aspects that but few appreciate it in its fullness. One becomes impressed with the poor carriage of school children, and indeed of the majority of mankind, and feels that physical exercise and training should aim at the improvement of the carriage. Another notices the awkward restraint of movement and is impelled to devise a system of culture which shall give freedom and grace. Another notices asymmetry and poor development, and devises such measurements and training as shall make for normal development. Still another is interested in athletics, and thinks that it is the panacea which will bring about human physical perfection. The lover of childhood finds in spontaneity the great organ note of human life, which harmonizes all activity and so believes games and plays to be the truest training for school children.

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*President's address, read at the meeting of the Physical Education Section of the N. E. A., Los Angeles, July, 1899.

As a result of this diversity of claim, school officers and superintendents are beginning to hesitate about the introduction of physical training, overwhelmed by the necessity for a careful consideration and just valuation of the various systems, each one of which in its struggle for supremacy claims to be alone in its completeness and adaptation to the needs of the schools, and too often does not hesitate to condemn its rival as ignorant, careless, poorly equipped, and blind to the great underlying principle of gymnastic progression.

This spirit of the schools of physical training has seriously militated against a calmly critical study of the essential problems of physical education. Were the opportunities now possessed by physical trainers utilized for a scientific investigation of these problems, we should not now lack a concordant physiology and hygiene of physical exercise, a coöperative synthesis of effort in defining the physical needs of children in kindergarten, primary, grammar and high schools, or a just, mutually helpful emulation in furnishing the means for the physical activity thus defined. We should have a clear idea of the relation of physical activity to growth, to the development and healthful action of the brain centres and to the fatigue consequent upon school work, so that we should be enabled to judge more accurately of the kind and amount of exercise most effective as a constructive and remedial agent and the conditions which determine its effectiveness. This can only come through comparative studies made upon the results produced by the training offered in the various systems. At present Dr. Foster, of Bryn Mawr, is the sole contributor to this comparative study.

It seems to me that this movement can no longer be delayed. Disagreement, sharp criticism and conflicting claims cannot but make our cause ridiculous and delay a full recognition of physical education. We must unite all conflicting factions into an earnest and efficient body of students who will be eager to grasp the truth unmindful of its source, unprejudiced by its bearing upon preconceived ideas. This is no time for sentiment, for blind following of leaders or the blinder application of cut-and-dried rules. It is no time for political methods, for the bribery of school and college officers to introduce a special form of gymnastics by offers of free instruction, or even of gymnasia. It is a time for loyal, conscientious work and study, and for the reexamination of the foundations of the theory and practice of physical training. The continued existence as a theoretical entity of any system depends today upon a careful study and adaptation of the newer results of physiological and psychological work. It is not too much to say that our ideas of the relation of physical exercise to school work may be radically modified within the next five years.

Some advance toward this coöperation has already been made. The American Association for the Advancement of Physical Education at its convention in Boston in April, considered the question of establishing a uniform system of examinations upon the basal studies of the curricula of normal schools of physical training, including anatomy, physiology, hygiene, physiology of exercise, and pedagogy, and of giving its certificate to those who, by successfully passing these examinations, gave evidence of adequate fundamental preparation for the teaching of physical training, regardless of their specialization in any one of the several so-called gymnastic systems. Steps were taken to appoint a committee of nine to prepare this matter for presentation to the next convention, two years hence. It was also unanimously voted, that a committee of fifteen be established somewhat upon the basis of the famous committees of ten and fifteen of the National Education Association, with representative membership drawn from all classes of teachers, physicians and psychologists, to consider the physical needs of the various grades of the public schools and determine the amount of physical training which should be introduced into each grade. Upon the successful outcome of this and similar plans for coöperative investigation and critical study, must depend the growth and vigor of physical education. Harmonious coöperation must take the place of antagonism. We must be students of the problems of physical education, not merely exponents of fixed systems.

THE INFLUENCE OF EXERCISE UPON GROWTH.*

FREDERIC BURK,

State Normal School, San Francisco, Cal.

It is not the purpose of this paper to prove that exercise affects growth. Let us accept this as a fact. An army of gymnasium directors are ready to rise with facts and figures to show that in certain instances at least, certain exercises have produced marvelous enlargements of chest capacity, sudden increases in the circumference of the biceps, have straightened misshapen limbs, squared sunken shoulders, and filled in here and out there as a potter shapes clay. Nevertheless, there have been failures now and then—failures in degree, failures at certain ages, failures in individuals. Clearly, there are limiting laws in the promoting function of exercise upon growth, and it is with some of these I shall deal.

What is growth? It is not getting fat, and to say that it is simply the process of getting bigger, is inadequate. It is admittedly true that we must include under the term "growth" a vegetative phase which Aristotle pointed out, and this certainly has to do with the increments of tissue,—their size, form, symmetry, and relative proportion, but this is manifestly not the only phase, for it does not include the most pertinent of the aims of physical training,—growth in the accuracy, rapidity, endurance, strength, and in the execution of long and delicately coördinated sequences of movement. No new muscles have been added to the hand of the skilled mechanic, artist or musician, nor have the size, form and relative arrangement of the muscles been modified in any degree commensurable to the prodigious growth in power. The muscular differences between the hands of a monkey and those of a man, are hopelessly inadequate to bridge the chasm of increase in power, coördination of movement, and delicate adjustment. Even in the matter of strength, no theory based upon muscular development alone, meets the fact that civilized races are superior to the uncivilized, or the facts shown by Féré that artisans whose daily work requires exercise of some measure of intelligence are stronger than artisans whose work is almost wholly muscular in form.

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*Read at the meeting of the Physical Education Section, N. E. A., Los Angeles, July, 1899.

In the form of growth which has for its aim power, we certainly must turn from the muscular, to the nervous system; nor can we accept as yet the common assumption that growth toward ideals of muscular beauty, symmetry and proportion is any certain guarantee of growth in power. Indeed we can have growth through the vicarious exercise of muscles. Fechner several years ago found that by learning to write with his right hand, the figure "9" backwards, his left hand was vicariously taught to accomplish the same feat though it had not been exercised. Theodate Smith, of Yale, for ten days exercised her right hand to insert a needle point into a small hole, so arranged electrically that any unsteadiness was recorded. Of 200 trials daily, the percentage of error sank in the ten days' exercise, from 39 to 12 per cent. The left hand was tested at the beginning and end of the ten days. It received no exercise in the meantime, yet the percentage of error had sunk from 50 to 24 per cent. As early as 1858, Volkman and Fechner had shown that by exercising the sensibility of any given area of the skin on one side of the body, the power of discrimination of compass points on homologous areas on the other side, increased, though they were not directly exercised. Even in the matter of strength, this vicarious influence has been shown. Miss Brown, at Yale, for thirteen days exercised her right hand in squeezing a mercury dynamometer bulb, with the result of increasing the strength of this hand from 28.8 to 48.6—an increase of about 20 points. Her left hand, which had received no exercise, nevertheless showed an increase in strength from 29.6 to 42.3—an increase of 12.7 points.

We have in these experiments an agreement which leads to the conclusion, within the limitations of the experiments quoted, that growth in power can be effected through exercise of the corresponding part of the opposite side of the body, without muscular exercise of the parts affected. How is this fact to be explained? Certainly any theory which seeks to find the explanation in muscular relations must fall far short of adequacy. If growth in power is relegated for solution to the nervous system, the theory that exercise affects not only the cell groups of the muscular parts involved, but also, in a greater or less degree, all cell groups in association, offers a road to explanation.

There are other principles of vicarious influence of exercise upon growth besides that of bilateral association. Féré in the Révue Philosophique two years ago reported a series of most interesting experiments upon a subject who exercised his hand by simple and easy flexions of fingers. After three months of such training, not only was the motility increased, but also, strength, precision, and reaction time of the entire hand. Clearly, there must be some explanation for the phenomenon in some neural association, quite beyond any muscular theory.

The separation of the problems of growth in the nervous system, and growth in the muscular system, introduces some important and significant modifications. Growth as a vegetative swelling in size is a more primitive form. The protozoan cell swells in size until it reaches a certain point in maturity, then it divides, and each daughter cell repeats the process. Most of the tissues of the human body effect growth by means not distantly differentiated from this primitive form of vegetative increase. But in the nervous system, this form of growth ceases forever in the early embryological period. The number of cells does not increase throughout life. Growth in the nervous system after birth consists in the awakening of latent cells into functional activity, and in the extension of associational fibres, bringing the cells into an ever closer coördination one with the other, and with foreign tissues of the body. Ramony Cajal suggests, plausibly, that the energy which was employed in growth by cell division now passes into the higher forms of fibre extension and development of latent cells. Exercise administered at the proper time is certainly a factor in producing this growth. Omission of it, we are almost justified in asserting, at least in many cases, prevents development. In any adult brain, even in old age, multitudes of undeveloped cells are to be observed, and growth of finer fibres is continuous throughout life, practically, as the studies of Kaes, Vulpius and others would go to show. Donaldson has shown from his study of the brain of the blind and deaf Laura Bridgman, that in the visual and auditory areas, there was an excessive number of undeveloped cells, and the number of fibres was very significantly small. These areas had received no exercise. Hamarberg, also, in his comparative study of idiot and normal brains, shows beyond question the woeful deficiency in the development of cells and fibres in the defective regions.

We now pass to some of the principles which condition growth and limit the function of exercise:

I.—Hereditary structure provides the framework for the main form of the more important fundamental movements and activities. Prior to birth the nerve cells are already formed and are lying dormant in their respective areas, and their larger connections, directions of course, and main associations are established, anatomically, long before they become functional, and therefore long before exercise can legitimately become a factor. This certainly applies to all of the well-established racial activities. To what extent preformation exists for activities less established of course can only be a matter of conjecture. Physical training, avowedly, has for its aim the development of those fundamental and basal powers which are old to the race, rather than those which the individual may possibly originate for himself. The chief function of exercise certainly is, therefore, to re-awaken that which is latent. We may say perhaps that in early childhood exercise is a factor which is in inverse ratio to the force of hereditary predisposition; that is to say, the more deeply instinctive a movement, the less the sphere of exercise. Chicks readily run at the bursting of the shell, but in the less instinctive activities such as capturing prey and selecting good from bad food, skill is acquired, as Lloyd Morgan has shown, by exercise and training. Children need comparatively little training in learning to walk, but an enormous amount in order to write.

II.—A popular conception is prevalent that by introducing certain exercises we may develop an organism in any order at will. Our systems based upon symmetry and proportional relations are prone to do this, since a lack of proportion at any partial stage of growth is suggestive of improvement. But we are met by the fact that internal provision of hereditary origin determines the order or sequence by which the nerve centers governing the various movements, come into functional activity. Flechsig in his researches upon the nervous systems of embryos and infants has unquestionably established this. He has shown that the process of ripening begins low in the spinal cord several months before birth, and proceeds in a generally upward direction, with some exceptions, reaching the medulla, pons, and lower portions of the brain, about the time of birth, and making a beginning in the cortical areas of bodily movement and of the special senses, in the first few months after birth. In this primitive period Flechsig has traced, in most interesting detail, the early sequences, —growth first in one area and then in another, or a bundle of fibres extending from this area to that, etc. There seems to be a fixed causal sequence in this order so that a ripening in one area or centre becomes the cue for the ripening in another.

III.—A principle of overwhelming significance is that this determined sequence of development is an evolution from those structures or movements which represent the oldest racial forms, towards those which are the most recent additions of the race; in other words, that the movements of the individual unfold in an order determined by the history of race development. A notable illustration is in the motor columns of the spinal cord which convey voluntary impulses from the cortex downward to affect and modify the impulses originating in the cells of the spinal cord. While the spinal structures themselves are well matured before birth, these foreign fibres, representing the later addition of will activity, mature at a distinctly later period. Voluntary control comes later in the child as in the race.

IV.—A corollary principle to that of determined sequence in development is that the time at which each area ripens tends to be approximately the same in all individuals, although other factors modify this principle to a varying degree. For the primitive structures observed by Flechsig in embryos and infants, the variation, under normal conditions, is slight, but we certainly have evidence in the later growths that this time relation is greatly modified. Secondly, all forms of growth, nervous and vegetative, are by rythms of rest and activity. In unicellular life the cell swells, divides, and then rests for a period before the daughter cells repeat the process. With the infinite differentiation of function in metozoan life, each part or organ has its varying periods of rest and activity and the problem of mapping out these growing and resting periods for each part seems hopelessly baffling. The increments of stature and weight doubtless represent a composite, or an algebraic sum, of these growths in individual parts, but the fact of regular rythms impresses the principle at every step of investigation. For example, among children the world over there is a period of comparatively rapid increase in height some place between the sixth and ninth years, then comes a period of two or three years, just preceding pubescence, when the increase is comparatively slight, suggestively analagous to the resting period of a cell after division while it stores up energy for a new growth. Then comes the rapid shoot of the first two or three years of adolescence, and finally another rest and a smaller and later period of rapid growth. As Malling-Hanson, in Denmark, has shown, not only are there diurnal alternations of growth and rest, but also weekly; and further, boys grow in height two and one-half times as rapidly from April to August as from August to November, while the weight rate is just reversed and boys lose in weight during the spring and summer; the growing period in weight is from August to November, when the height rate is at its minimum. If exercise should be employed, as we are all ready to agree, only in the nascent periods of growth, what provisions have yet been made in our systems adequate to the necessities? We are unable to take more than doubtful steps in this direction, for only the shore-line soundings of the facts relative to nascent periods, and their times of appearance, have yet been made by investigation. We know, for example, that the marvels of the gymnasium in developing large lung capacities are possible because the gymnasium exercise deals with adolescents, and the nascent period of lung growth falls fortunately within this period. So with a large number of other powers, the age at which gymnasium exercise usually is introduced fortuitously hits the nascent period for the given organ or movement. Roberts, in the Fifth Parliamentary Report, shows that the systematic exercises, which in our gymnasiums for adolescents produce such quick responses for growth of lung capacity, strength, etc., have utterly failed when perpetrated upon boys under twelve years. Their nascent periods in these lines have not yet come. We have much evidence to show that just before a structure comes into its nascent period, exercise may be very easily effective in producing a premature growth, perhaps to hygienic injury. A kitten's eyelids do not open for several days after birth. The nerve is not medullated, that is, it is not functionally mature until the end of that period. If, however, as has been done, the eyelids are forced open prematurely at birth, the exercise set up by the light, causes a premature medullation of the nerve, resulting in a sore-eyed cat. On the other hand all practical observers know that exercise postponed beyond the nascent period is able to accomplish little, especially in the cases where heredity plays a controlling rôle. A bad habit of movement acquired in a nascent period is hard to overcome. A child who learns a foreign language in the nascency of the speech centres, speaks without accent, while the language learned in adult life rarely reaches this degree of perfection.

V.—The form of the exercise necessary to develop a fundamental function is essentially determined by hereditary structures and tendencies. Certain forms of play are universal among children the world over, varying only in name, and extend backward in history as far as tradition will reach. The gambols of a kitten or of a puppy are the same in form from generation to generation. The principle is more infrangible, the more instinctive and fundamental the activity. Thus there is left no standing room for originality in the invention of systems of exercise, especially those designed arbitrarily, regardless of heredity, to meet ideals of beauty or the purposes of æsthetic exhibitions. Our business, on the contrary, must ever be to discover the form of exercise which race habit has handed down, and this we have not yet done to any adequate degree.

VI.—In the development of movement, nature, as a rule, proceeds by a system of modifications of old movements. Thus, speech uses practically the same organs and muscles as those used in eating, but a higher and more recent level of nerve cells exerts a controlling and modifying influence upon the cells which formerly controlled these muscles. We need here to borrow the use of Hughlings Jackson's level theory. In the lowest forms of invertebrate life we find a nerve cell, connected by sensory and motor nerves with the muscular or other foreign tissue directly. We have this primitive type of cell preserved in the lowest level of the human nervous system. Certain cells are, through their fibres, in direct contact with foreign tissue, receiving sensations from, and dispatching impulses to such tissues—muscles, skin, bone, etc. But there is a higher class of cells which have no such direct contact with tissues outside of the nervous system. They receive their sensations from the lower level cells, and in turn transmit modifying impulses to the motor cells of this level. They deal with the outer world at second hand as it were. Again, there is evidence of cells which are superposed upon the cells of the second level, as they are superposed upon the cells of the lower level. They deal with the outer world at third hand; further there is some evidence of still higher level cells, so we may think of the nervous system as a series of layers, each laid by a series of evolutionary deposit. The order of ripening is from oldest to that which is newest. In many movements the higher level cells introduce the modifying factors of accuracy, dexterity, associational sequence of delicate movements, etc., and if we accept the view that each cell is a generator of force, then we can explain how it is that the higher level cells can reinforce with added strength the cells of the lower level. The studies of fatigue, such as Lombard and Kraepelin have made, support such a conclusion in the facts of "second breath"; that is, after a time the power of movement in one level seems exhausted, then a new supply of force from a higher level is added as a reinforcement. The principle of levels offers to our view a new series of complications; the ripening of successive levels introduces new nascent periods when exercise may be effective. The elements which make for accuracy, rapidity, endurance, and dexterity seem to belong to the higher levels, largely maturing in adolescence, as the studies of Bryan, Gilbert and others upon motor ability would suggest. For example, infants may execute a finger movement, but accuracy and rapidity of the movement do not reach their rythm of greatest nascency until puberty.

VII.—In conclusion, then, there is slight evidence of any logical arrangement in the order of development of nascent periods, nothing which can be prophesied by a systematic planning of what would seem to be appropriate. The key lies hidden in the mystery of race development and there is everywhere evidence that exercise given without regard to this hereditary determining power is either ineffective or is positively unhygienic. The movements of the thumb, so all important in human use, and seemingly so fundamental in the exercise of the hand, are several months later in their nascent periods, than the movements of the rest of the hand. The infant makes no use of his thumb until he is several months old. The explanation lies in the fact that in evolutionary history the thumb came into use late. The infant at birth can grasp with his whole hand with a strength, which, proportional to his size and weight, he can hardly be said to improve upon in adult life. The infant's eyes tend to be independent of each other in movement, and growth in them is toward coördination; yet in arm development, a baby is several months old before he can make a movement with one arm without making the same movement with the other. Growth in arm development is from coördination *toward* independence. The incongruity between eye and arm development finds a probable explanation in the fact that in animal evolution the fore limbs were ever used coördinately and eyes generally were used independently; and since this relation has been reversed in the primates, and especially in man, the transition is repeated in the child. It follows that notions of logical arrangements and arbitrary theories of symmetry can be but a source of confusion in determining the order of exercises. There is one important thing —we want more facts regarding the hereditary order. The neck, for example, does not begin to grow until the seventh or eighth year; the lungs double in capacity from birth to adult life, but nearly all this growth takes place in the first two or three years of adolescence; the heart also waits till adolescence, and so on. But these are merely illustrations of growth of large groups of parts, and we must realize that each of these growths is merely a composite of the varying growths, each with its separate resting and active periods, of more elementary parts. One part is resting while its neighbor is active. One element, today, seems out of proportion and unsymmetrical, but this may be merely because its hour has not yet come. There is clearly a field here for the systematizer, with his soul focussed upon muscular proportion, to play the part of a bull in a china shop. How can we, in the state of our present knowledge, cross section the organism at any partial period of growth and declare that, by the laws of tape and scales, this part needs development, and that reducing. The proportion of today is not that of tomorrow, nor that of yesterday. The theory of proportion and symmetry may have its place and significance in the training of adults, but with growing organisms we need to know much more than we know as yet of the nascent periods when exercise can safely and profitably be administered.

While it is unquestionably true that our systems are producing well-formed men, it has been by no means established that these products possess surer immunity from disease, or are the fittest to survive from a race or an individual standpoint. There is certainly much biological suggestion to indicate that symmetry and average proportions have not been nature's aim, but, on the contrary, there is ever an effort to produce *particular* individuals, particular forms, and particular proportions. The actual but unsymmetrical Socrates may have been an abortioned attempt of nature to produce an ideal but symmetrical Apollo, and while success would have been beautiful, it would not have been Socrates. Medical practice gives much suggestion that each individual is ordained, perhaps from the germ, for a particular size and proportion, and if disease or other transitory impediment interferes, then at the first opportunity the growth energy rushes forward with redoubled energy to reclaim its own. Minot's guinea pig, having lost one-third of its weight by disease, nevertheless made up this loss in convalescence. From this standpoint, the function of exercise must be ever to fulfill nature's first intention for the particular individual, and methods which are based upon averages must be classed as dangerous impediments. This does not mean that unsymmetrical forms are always nature's aim, but it does mean muscular form cannot be placed as the end of physical training.

Lastly, we must not underestimate the power of exercise, arbitrarily enforced, to modify nature's intention. The principle has already been pointed out that the more instinctive a given movement is, the less is it susceptible to outside influence of exercise. But man has few set and cast-iron instincts such as the lower animals manifest. This is not because he has a less number of instincts in tendency, but doubtless because, as the heir of all ages, he has a greater number of instincts and they are in vigorous conflict. They hail from different origins, and at times it requires but a touch to tip the scales in favor of one or the other tendency. Doubtless exercise has it in its power, at such moments, to direct energy into one organ at the expense of its neighbor, or to overdevelop one part upon a theory of relative proportions. We have no assurance in a particular individual that symmetry is always the intention of nature.

In brief, the aim of this paper has been to present the view that exercise, while an essential and powerful factor of growth, nevertheless must, in order to be profitable and hygienic, be limited to the form, sequence, and time of application, determined for it by hereditary design; that exercise, the aim of which is merely muscular form and proportion, offers an inadequate grasp of the problem; and that during the growing periods, especially of those movements which are most instinctive, originality and arbitrary system of physical training leading to departures from racial habit, are notions to be avoided.

HOW MAY FATIGUE IN THE SCHOOLROOM BE REDUCED TO THE MINIMUM?*

H. E. KRATZ,

Superintendent of Schools, Sioux City, Iowa.

Mosso, an eminent authority on fatigue, states that he has made the difficult ascent of Mt. Blanc several times, and observed the sublime scenery that greets the eye of the traveler, but that he can remember nothing of the magnificent view from the mountain's summit, because his fatigue so greatly lessened his mental ability. If a well-trained, mature mind like Mosso's fails to carry away lasting impressions from scenes so grand, so awe inspiring, so profoundly impressive, so powerfully appealing to the emotions as those gained from Mt. Blanc, because fatigue has laid its numbing hand upon his powers of observation and perception, what can the untrained, immature mind of the child be expected to carry away from his usually dull routine of daily work in the schoolroom, when fatigue has laid its numbing hand upon his weak powers of observation and perception? Has not this same experience of Mosso's been paralleled in the instruction of even bright pupils, and teacher and pupils saddened and discouraged because, after carefully and laboriously climbing to the mountain top of some difficult topic, from which a glorious view could be caught, fatigue so dulled the powers of perception that practically nothing of permanent value was carried away? Such experiences are only too common, and besides being depressing, leave the pupil in a discouraged frame of mind, with confidence in self shaken, and with less desire to make the ascent again.

May not this be, in part at least, the explanation why so many pupils lose interest in their school work, develop a positive distaste for it, fall behind in their work, and are classed with dullards so-called? Surely, the normal mind of the child possesses as vigorous an appetite for mental pabulum, as his stomach does for physical pabulum. Why do so many turn away from the cuisine of the school? The fault lies not in the nature of the child's mind, but in the way and in the time in which it is served.

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The cry of overwork in our schools is frequently heard. It is a matter of supreme moment whether or not our children are in danger of over-pressure. Fatigue is nature's kind warning against over-pressure and over-exertion. We need constantly to be on the alert to discover whether or not the requirements of the schoolroom are too heavy, whether the hours of work are too many, whether the study periods are too long, whether the rest periods are too infrequent, whether any change can be made by which the maximum mental efficiency can be secured with a minimum expenditure of each child's energy. It should be constantly borne in mind that what a child accomplishes or masters, depends not so much on how hard or how long he works, as it does upon the fact that he is working at the maximum of his power. Ten minutes of concentrated, vigorous effort, when the mind is fresh, is worth ten times ten minutes of dawdling, whether the dawdling be caused by fatigue or laziness. Time is no measure of progress in the schoolroom.

Ribot says, "Fatigue in every shape is fatal to memory." Every teacher therefore should be familiar with the indications of fatigue, with the conditions which most rapidly induce it, and with the means that may be employed to avoid, to reduce or to overcome it, so that the maximum of effort may be attained by the minimum expenditure of energy. It is said that he who causes two blades of grass to spring up where only one was growing is a public benefactor. But what shall we term him who points out how to increase mental efficiency? What honor shall we bestow upon him who can so direct us that we can bring down with us the glorious views from the mountain top, rather than be baffled and lose our grip upon them through the benumbing effect of fatigue?

It was my privilege, more than two years ago, to state before the department of superintendence of this Association, that fatigue furnished "important indications, which, if carefully studied, will give the right ordering of the daily work of the schoolroom, and secure the largest degree of mental efficiency with the least loss of the child's energy. This problem has not yet been fully worked out, and we should earnestly address ourselves to its solution." It may be said, after the lapse of more than two years, this problem has not yet been fully worked out, and much still remains to be done, but progress has been made.

Dr. Hodge has demonstrated that brain work exhausts the nerve cells, causing them to shrink, and that rest is needed for their recovery. Mosso concludes that such exhaustion is due, in great part, to the formation of toxic products through nervous and muscular action. These poisonous products distributed by the blood chiefly induce fatigue. Severe and long continued activity leads to an accumulation of poisonous products in the blood. These cause acidity of the blood, which, in turn, lends a temporary acidity to the disposition. This irritability is one of the familiar signs of fatigue. Other indications are wandering, lusterless eyes, jaded expression, asymmetry of posture, twitching of muscles of the face and of fingers, weak balance of hand, abnormal color of skin, frequency of errors, and lack of the usual mental grasp.

But how may fatigue in the schoolroom be reduced to the minimum? is the important question. We concede in our question that it cannot be entirely overcome, that we must reckon with it, and endeavor to reduce it to the minimum where it will clog instruction as little as possible.

This paper cannot take up the subjects of good health, nutritious foods, proper exercise, etc., although each of these contributes in no small degree to that fresh, vigorous condition of mind and body, which is so essential for the attainment of the maximum of mental efficiency. Nor can it more than point out that much of inattention, that source of incalculable loss in the schoolroom, is often due to over-eating, impoverishment, vitiated and over-heated atmosphere, misfits in desks, and many other causes whose remedies are to some extent within the grasp of the teacher.

Our psychologists tell us that with the normal pupil mental fatigue from school work is quickly induced and also quickly passes away. Mental efficiency, or the increments of skill gained through mental training, is much more permanent in its character, and is not soon lost. If this be true, in order to attain the highest possible maximum of mental efficiency, with the greatest economy of effort, provide working periods with more frequent rest periods, and thus secure, through this power of the mind to recuperate rapidly, an almost continuous high state of mental vigor. That which has prevented us in the past from injecting more freelv these rest periods into the work periods, has been the fear that during such interruptions, pupils would lose all the advantage gained. But that fear, according to this statement of our friends, the psychologists, is not well founded. The mind, instead of being as we supposed, like the old-fashioned sensitized plate of the photographer, which required a long exposure, is, after all, more like the highly sensitized plate of the snap-shot camera. Not long exposure, but right conditions, such as proper foundations, close attention, profound interest,—these determine the vividness of the mental picture, its permanency and the degree of strength gained. We need, especially in the lower grades, to bring in these more frequent rest or exercise periods, believing that the increments of power gained from mental activity will not be dissipated through such slight interruptions, and that the efficiency of public school work will be greatly increased, as well as relieved of much of its present drudgery.

Change is rest. Presumably the psychological explanation lies in the fact that the brain has various sense centres, to which are referred appropriate stimuli. Weariness, therefore, in the sense of sight can be partially relieved by exercise which appeals largely to the ear, or the use of the hand. The daily programme should be so arranged as to bring out the strongest possible contrasts, and for the lower grades, frequent changes in subjects. Music, drawing and physical culture should be sandwiched in between the more difficult studies.

Not simply should strong contrasts be sought in arranging the daily programme, but there should be careful study made, so as to arrange subjects with reference to the hours when each can be pursued to best advantage. Professor Seeley, from memory tests made by Dr. Krohn, concludes that, whatever subject is taken first in the morning, the average retentive power of the children reaches 89 per cent. This is the best working period of the day, and presumably the period for arithmetic. The second best working period he places from three to four in the afternoon, and with history as the subject, finds that the retentive power of the children is only three per cent less than for the morning hour. Common observation, however, will scarcely sustain this conclusion. The next best period is assigned to the time from one to two-thirty, and the poorest period from eleven to twelve. Under the best possible arrangement of recitation periods, the greatest loss at any one period is twenty-one per cent, while under the arrangement of the average school programme, the loss is thirty-eight per cent, or seventeen per cent greater. The average loss under a poorly arranged programme is eleven per cent greater than under the best arrangement. Whether we accept these results as strictly accurate or not, it certainly remains a highly important fact that much can be gained towards relieving the fatigue of the schoolroom by a wise arrangement of the daily programme with reference to contrasts in subjects and their best adaptation to the hours of work.

Pupils waste an enormous amount of energy in their misguided efforts to master a subject. The need of training pupils how to study, how to centre every energy upon the task in hand, is not yet sufficiently appreciated by teachers. Tests in the recitation are all directed to ascertaining how much the pupil knows of the subject, and the more vital process of how he gained his knowledge is ignored. Studying is a great art, and its mastery, or failure to master it, is fraught with momentous consequences to the pupil. There are those right beginnings which lead on to conscious power and mastery, and there are those misguided efforts which lead to weariness and defeat. The teacher of today must be keen enough to discover what bad habits of study are mocking this or that earnest pupil, and making his school life drudgery instead of an inspiration, and when discovered must be able to train into a better use of his mental powers.

The study of interest, how to utilize it more fully in school work, has in the last decade banished much of the weariness and drudgery from the schoolroom, and its advantages and helpfulness in this direction are yet far from being exhausted. The reason why interest is such an important factor in relieving from fatigue lies in the well known fact that the greater the interest in a subject the less the effort of will required to hold the attention to that subject. The conscious exercise of will is always fatiguing, and specially so when the subject under consideration is distasteful. The reason that interest becomes such a potent factor in relieving from drudgery lies in the fact that, even concerning subjects which at first were distasteful, we may, to quote the Herbartians, "build up such a powerful apperception mass, that any fact connected with that mass will at once attract our attention quite irrespective of our will." Under the wise teacher's management, therefore, every subject in the school curriculum can be eventually included within the charmed circle of the pupil's interests.

Why is fatigue induced so much sooner when the work is distasteful? We have already intimated that it is due to the greater exercise of will which is required to hold the wavering attention. But it seems that another characteristic should be pointed out. Where distaste exists, an attitude of antagonism springs up. This feeling of dislike seeks to express itself in some outward form. To repress it, requires great effort. Although outwardly the pupil may seem composed there is a deep inward struggle. The teacher, unless some bodily expression be given it, remains ignorant of it, and is not conscious of the immense expenditure of mental, even physical, energy the child is undergoing. Let me illustrate: I press my hand against one of the walls of this room. I foolishly fear that it may fall upon me and crush me. I press with all my might against it. Every muscle of my body is tense. The cold, unfeeling wall shows no sign of yielding, but resists with equal pressure my tense muscles, and but slight evidence goes forth that I am in such an intense attitude of resistance. What a serious mistake to conclude that because there is but little motion, there is therefore no intense struggle going on, and therefore no cause for weariness. And so in the schoolroom, when a pupil has a serious dislike for a subject of study, or for the uninteresting manner of presenting it, or a feeling of antagonism has unfortunately sprung up between her and her teacher, what a serious mistake to conclude that because there is but little outward manifestation, there is therefore no severe tension or cause for weariness. These dislikes, these antagonisms, these undercurrents of feeling sap energies which should be utilized in fruitful school work.

Education from this point of view, is to direct nervous energy into right channels and to keep it out of wrong ones. In every idea received there is a tendency towards motion aroused which expends itself either in nervous tension or in action. This is illustrated in mouth watering when something luscious is seen, or in mind reading. The child, therefore, is to be regarded as a sensitive being in which nerve currents are constantly being aroused both by external and internal stimuli. These nerve currents may or may not be under control. Some may be termed friendly and some hostile, some dominant and some defeated. To resist a terrifying sound may waste more energy than to give way to it. To prevent fidgetiness may be more exhausting than to yield to it. Fatigue and worry may so react upon each other that they become an endless circle. Here is where the skilled twentieth century teacher with her superior knowledge of these nervous forces will be able to lessen this waste of energy.

Play furnishes a potent means for reducing to a minimum fatigue of the schoolroom. The old saying, "All work and no play makes Jack a dull boy," contains an important pedagogical truth. There is nothing so rapidly recuperative for mental fatigue as spontaneous activity; and yet, on the other hand, there is nothing so helpfully educative as the self-activity engendered in play. That which has been most beneficent in the present modification of the work of the schoolroom has been the introduction of the play idea from the kindergarten. Strange that it was not introduced sooner! Every idea that enters a boy's mind is accompanied with some tendencies to motor activity. He cannot think of a ripe watermelon without a rush of saliva to his mouth, and the muscles of his right hand becoming tense with the desire to grasp the luscious slice. In fact, he has not thoroughly grasped an idea until he has set every possible power he possesses, both of mind and body, into sympathetic action. He must be free to learn it all over, to secure for himself as many points of contact as possible. And yet, until quite recently, Gray's churchyard silence, "when all the air a solemn stillness holds," was the supreme test of schoolroom management. What an indictment might here be entered against the straight-jacket school of yesterday!

Play, according to Dr. Fitz, is not due so much to an overflow of animal spirits, to a superabundance of strength, as held by Schiller and Spencer, as for the better preparation of life, which nature designs to be realized through it. To quote Dr. Fitz: "Thus youth becomes more completely an apprenticeship to life, with play as the master workman. In play the child is the unit of force; he initiates his own conditions. His limitations are self-imposed. His self-control lies in execution rather than in inhibition. He is concerned with self-expression rather than with self-repression. Play thus relates itself to the truest conception of education, the development of power, the power of the individual to act as a self-directed unit in civilization. The self-control gained by play acts immediately, strongly, and honestly in response to conditions as they are presented in life."

Some schools rely upon physical training exercises to relieve from fatigue, but while it may be admitted that such exercises are helpful, they do not afford as good opportunities for mental recuperation as the more spontaneous movements in an out-door recess. Physical training exercises usually require close attention and much of that same exercise of will which is the chief cause of schoolroom fatigue. The movements are liable to become perfunctory, lacking the spontaneity, the vital interest, and in consequence the exhilaration which out-door play gives and which is the best tonic for rapid recovery from mental fatigue.

I plead guilty to the charge of being one of those city superintendents who thought it wise, because of the danger from excessive exercise and exposure, but chiefly because of the moral contamination possible during the out-door recess, to cut off such recess in the upper grades; but I have been soundly converted. I have instructed my teachers to return to the out-door recess, and avoid its former excesses and moral contamination, as well as securing more of its recuperative and educative influence, by participating freely in, and in part, supervising the children's games on the schoolground. I hold that its educative, as well as recuperative and health side, is of such value that we should utilize it as an important factor in the children's education.

To sum up: fatigue in the schoolroom may be largely decreased, if not reduced to the minimum, by more frequent use of rest periods; by arranging stronger contrasts in the daily programme, as well as securing a wiser adjustment of difficult subjects to the best working hours; by patient and wise training of pupils into better habits of study; by a better utilization of the doctrine of interest; by lessening nervous tension in the schoolroom, and by wise use of play under supervision.

PLAY INTERESTS OF CHILDREN.*

WILL S. MONROE,

State Normal School, Westfield, Mass.

Perhaps no one factor in the life of the young child is so conducive to healthy development as play activity. As Professor Preyer has forcibly stated it:

"A man does not learn through any kind of instruction or study in later life anything like so much as the child learns in the first four years of his careless existence through the perceptions and ideas gained in his play. What seems to adults unworthy of the slightest attention in childish play is to the child himself of the highest significance, because it has the charm of novelty."

The utility of children's play, from an intellectual point of view, is likely to be overlooked, but in what other form of activity does one find such diversity and virility of mental forces? As Professor Preyer remarks:

"How much there is of combination, of putting together; how much of analyzing or taking to pieces of tangible things; how much of construction and destruction; how much of investigation and persistent penetration, accompanied with great muscular effort. * * * Play makes the child happy. Work makes happy the learned man; and by such a parallel there is no expressed depreciation of the value of the activity of the investigator and thinker, the discoverer and inventor. We simply put a higher estimate on the activity of the playing child, who, in his primitive fashion, likewise discovers and invents."

With a view to ascertaining the games which children like best to play, the following test was given to 978 boys and 1,072 girls between the ages of seven and sixteen years: "What games do you like best to play in summer, and why?" Three hundred and thirty-two favorite games were mentioned, fifty-four of which, being named but once, were regarded as exceptional rather than traditional, and were not collated. The remaining 278 games were grouped under nine rubrics, and constituted the following percentages of all the games mentioned:

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*Read before the Physical Education Section of the National Education Association, Los Angeles, Cal., July 14, 1899.

1. Ball games	32 per cent.
2. Chase games	31 per cent.
3. Motion games	10 per cent.
4. Occupation games	5 per cent.
5. Parlor games	3 per cent.
6. Love games	3 per cent.
7. Guessing games	1½ per cent.
8. Animal games	½ per cent.
9. Miscellaneous (unclassified)	14 per cent.

All games played with balls have been grouped under the rubric ball games. The group includes 13 per cent of all the games mentioned, and was represented by 65 per cent of boys and 35 per cent of girls. Base-ball was the favorite ball game; it was preferred by 70 per cent of the boys, and reached its maximum at eleven and twelve years. Foot-ball was a favorite game with 32 per cent of the boys, but it had few advocates among the younger children, and reached its maximum at the age of fourteen years. Hand-ball and basket-ball each had a few advocates among the boys. Croquet is a favorite game with 20 per cent of the boys and 44 per cent of the girls. With both sexes it reaches the height of its popularity at from eleven to thirteen years. Marbles are mentioned as favorite games by 28 per cent of the boys and 4 per cent of the girls. This game is rarely mentioned after the age of thirteen years. Hopscotch is the game liked best by 10 per cent of the girls and 1 per cent of the boys. Among the other ball games less frequently mentioned are "duck-on-the-rock" and "tennis" by the boys, and "bean-bag" and "tennis" by the girls.

Chase games, in which the element of vigorous physical exercise is pronounced, constituted 31 per cent of the favorite games. "Hide-and-seek" ranked first, with 40 per cent of boys and 60 per cent of girls. It is more often selected than any other game, and reaches its maximum with the boys of twelve years and the girls of thirteen. "Tag" ranks second in popularity among the games of chase. It is mentioned by 13 per cent of the boys and 50 per cent of the girls; and "blind-man's-buff" is third, with 5 per cent of boys and 12 per cent of the girls. Here, as Professor Groos notes, instinct is more conspicuous than in other forms of play, since by means of it the young practice sportively those movements which will be used in earnest later on. Many of the chase games partake of hunting and combative characteristics, and are only explicable, as Professor James points out, as an aboriginal impulse initiated by immediate and overwhelming tendencies to muscular discharge. "If evolution and the survival of the fittest be true at all," he says, "the destruction of prey and human rivals *must* have been among the most important of man's primitive functions; the fighting and the chasing instincts must have become ingrained." Some of them, too, are clearly derived from more serious practices of earlier times. Tylor says, in this connection, that things which occupy an important place in the life history of primitive men become the playthings of children in a period of civilization. The bow and arrow, for example, which constituted the weapons of mankind at an early stage of its existence, have outlived the serious purposes for which they were devised and have become toys in the hands of civilized children.

The keen enjoyment which rhythm occasions is the basis of preference in the motion games. Such games include rounds and numerous verbal repetitions; and if one is to judge by the preferences of these children—27 per cent of boys and 73 per cent of girls—they appeal especially to the feminine play instinct. "Ring-around-the-rosey" and "farmer-in-the-dell" are the two favorite games of this group. Most of the motion games are accompanied with music, and in some there are certain dance variations. Such games are favored almost entirely by girls under eleven years of age. Miss Fanny B. Gates, in her excellent study of the musical interest of children,* remarks that the sense of rhythm is essentially a sense of movement and suggests the early connection of music and dancing. "Anyone," as she says, "who watches himself or other people as they listen to music will perceive that the pleasure is often enhanced by actual rhythmical movements. Even if no actual movement occurs, the tendency is there."

The group of occupation games is not as large as one might reasonably expect; but it should be recalled that not a few of the games of chase and the motion games imitate adult activities, and that many children play at housekeeping and storekeeping without thinking of them as games; and three-fourths of such preferences are by children under eleven years of age. Keeping house, store, and school, are the forms of occupations oftenest mentioned. Among the children of the American Indians most of the games are sportive imitations of occupations which they will carry on in earnest a few years later. A Sioux Indian, in writing his recollections of wild life as a boy, says:

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*Journal of Pedagogy (Syracuse, October, 1898, Vol XI., pp. 265-84).

"Our sports were molded by the life and customs of our people—indeed, we practiced only what we were expected to do when grown. Our games were feats with the bow and arrow, foot and pony races, wrestling, swimming, and imitations of the customs and habits of our fathers. We had sham fights with mud balls and willow wands; we played lacrosse, made war upon bees, shot winter arrows, and coasted upon the ribs of animals and buffalo robes."

Social games, played indoors, are mentioned as favorites by but 3 per cent of the whole number of children tested, of which 49 per cent are boys and 51 per cent girls, most of whom are from twelve to sixteen years of age. Checkers, chess, dominoes, and parchesi lead with the boys, and cards with the girls. As the test called for favorite summer games, it is not at all surprising that the number suggesting such games should be so small, since the games of this group are essentially forms of amusement in the winter.

When it is recalled that in America boys and girls always attend school together, surprise will be felt at the small number of children selecting love games as favorites. Is it because the sexes become so accustomed to one another that coquetry becomes too commonplace to find a place in their games? Many of the love games have pretty rounds and rhythmical dance accompaniments, and because of their jingle and motion would naturally appeal to young children. But less than 3 per cent of the whole number of children tested mention love games, and the feminine preponderance of those who do make such selections is most striking, 87 per cent of the number being girls and but 13 per cent boys. Those who select love games are at the dawn of adolescence. "Drop-the-handkerchief" and "post-office" are the two favorites of this group.

Guessing and animal games include respectively 1½ per cent and ½ per cent of the children tested, the former being mentioned almost entirely by the girls and the latter by the boys. Guessing introduces the element of chance which among primitive people was associated with the art of divination, and such games may be regarded as survivals of a branch of primitive philosophy. The animal games are purely imitative in character, and both the actions and the sounds of the animals are imitated. Several of the animal games are also games of chase.

Very naturally the children experienced much difficulty in stating the reasons why they preferred certain games. Twenty-four per cent of the boys and over 30 per cent of the girls gave no reasons. Few of the children of seven or eight years stated any reasons for their selections; after thirteen years most of the children gave reasons for their choice. This would hint that thirteen years is the age when children begin critically to examine their evidence, and when the reasoning power of the mind appears as a dominant factor in the mental life of the child. Sex differences are much less in the reasons than in the choice of the games. Fifty per cent of those who give reasons say that games give them pleasure. That the game produces agreeable states—whatever they may be—seems to these children a good and sufficient reason for liking it. Certainly in many instances, as Professor Groos has suggested, pleasure is a cause. Fifteen per cent definitely say that the pleasure comes from movement exercise. Some of the children state that they like to play because of the training in bodily functions, and the consequent pleasure that muscular agility and coördination will give them. Seven per cent of the children base their game preferences on being in the open air. Out-of-door play gives them a sense of freedom and lack of restraint which is common to adolescents. Six per cent of the reasons centre about emulation, gain, success. These children select games in which their own individual skill triumphs—games which accord them the pleasure of enjoying their little successes. Five per cent of the children select games in which they can repeat the actions of grown people. Imitation and the conscious pleasure of self-delusion mediate the selections of this group. Four per cent of the children who give reasons say that they like best the games that may be played in common with others; they give the desire for companionship as the basis of their choice; and 4 per cent select games that are exciting. Since the test called for summer games, 3 per cent of the children make selections of games that can be played in summer and cannot be played in winter. Three per cent consider certain games more healthful than others, and 3 per cent want games that are not rough. This last group represents almost entirely girls, since many of the boys distinctly state that they prefer vigorous, active, rough games. The study suggests the preferences of children in play interests, and the question naturally arises: What social and educational forces are brought to bear on the child during the period when play interests are deepest?

In some cities and towns in America games are recognized as a part of the regular school instruction. A most carefully worked out course of study of games, running through the nine years of the elementary school, has been prepared by Mr. George E. Johnson, superintendent of public schools at Andover, Mass. In Grade 1 (for children of six years), for example, there are (1) simple rounds for the purpose of removing shyness, developing sociability, and gaining the attention of all to a common interest; (2) games which involve the recalling of the names of animals as an aid to memory; (3) observation and indentifying games to cultivate the perceptive powers; (4) anagrams, matching letters, and spelling matches to quicken interests in reading and spelling; (5) turning indicators with numbers, playing store, estimating distances, and mathematical puzzles as aids in arithmetic; (6) playing in sand, making caves, roads, and sailing boats, as well as such games as "follow-the-leader," because of their educational value in geographic instruction; (7) historical tableaux, literary whist, and theatricals as incidental aids in the study of biography and history; and (8) a long list of games especially adapted for purposes of physical training—return ball for the development of arms and hands; feather games (keeping a feather in the air), squat-tag, and racing for chest development; balloon ball, snow fights, and the London bridge (tug-of-war) for back, waist, and abdominal muscles; and cross-tag, jumping, and marches for the legs. In some of these games all the children take part; such games are played on cool days. In others only two or three children exercise at a time; these are played on warm days. A third kind of games is played with apparatus, and these usually take place in the schoolrooms. Among the results noted in these schools since definitely prescribed games have become a part of the school course are (1) better power of conversation on the part of the young children; (2) more lively and sympathetic social interests in the school; (3) evidences of awakened intelligence on the part of the young children; and (4) fatigue less apparent toward the close of the sessions.

Miss Rebecca Stoneroad, director of physical training in the public schools of Washington, D. C., has also made a commendable beginning in the correlation of play interests with school work. In her "Gymnastic Stories and Plays for Primary Schools" (Boston: D. C. Heath & Co., 1898) she outlines a series of physical exercises along play lines for the first two years of school. Speaking of her efforts to make use of play as a factor in body-training, she says:

"We have endeavored to take advantage of the play instinct of childhood, and, adapting it to our own ends, make it a means of education. This becomes regulated play—play directed toward educational ends. * * * In these lessons the children use their imagination, and act out a connected and consistent story in a series of body movements. Many of these have been within their experience outside of school, yet they make good gymnastic exercises, bringing into action many muscles of the body. Pretending to do in school that which is seen or done out of it makes children happy in the doing. In these natural movements of childhood opportunity is given for that coördination of muscles so highly desirable in all physical exercises for the young."

A secondary aspect of this study was the large number of counting-out rhymes reported by the children as adjuncts of their favorite games. Practically none of the children seem to be without them; and in some instances individual children had as many as seventeen of these formulas for use in their games. In all, 183 different counting-out rhymes were reported; but all but fifty-four proved to be variations of a few pleasing or much-used jingles. The one oftenest mentioned—being given by 92 per cent of the children—is unmeaning and inelegant:

Ena, mena, mina, mo,
Catch a nigger by the toe;
If he hollers, let him go,
Ena, mena, mina, mo.

The second in point of popularity—being given by 86 per cent of the children—is:

One, two, three, four, five, six, seven,
All good children go to heaven.

These unmeaning and mysterious formulas serve a two-fold purpose in the child's play activities: (1) They determine who shall take the undesirable part in a game—a species of casting lots, but differing only in the method of execution. As these Massachusetts children say, these counting-out rhymes enable them to determine who shall be "it." This use of "it" is purely technical and has distinct meaning in the play vocabulary of the child. The French equivalent is *l'être*, and the German expression *sein daran* and *sein daraus*. (2) They are used for purposes of divination: some of them foretell the life duration of the child; others, the occupation of prospective husbands, probable number of children, etc. Bolton is of the opinion that these counting-out rhymes are survivals of the practice of sorcery; that the spoken charms were originally used to enforce priestly power; and that children engaged in counting-out for games are repeating in innocent ignorance the practices and language of a sorcerer of a dark age.

Counting-out rhymes are apparently universal features of children's plays; and, although they occasionally undergo changes, being transmitted from one generation of childhood to another by oral repetition, the marvel is that they should linger at all with such apparent purity. This persistence is possible only through a conservatism of children which is as pronounced as it is unexpected. In most of the matters which pertain to the life of children they are reformers of the most aggressive type, and quite oblivious of the traditions and limitations of their environment. But in all that pertains to their play interests they are conservative to the core. The formulas of plays are clung to with gospel tenacity; and the children themselves are the most displeased when the canons of games are irreligiously violated. Because of this insistence, this vein of juvenile conservatism, children's play interests and activities—their toys and games—are the oldest things in the world, linking the child through his play-life to the mental life of savages and barbarians.

A BRIEF RÉSUMÉ OF QUETELET'S "A TREATISE ON MAN." (Concluded.)

WM. W. HASTINGS,
Lincoln, Neb.

APPENDIX A.

I.

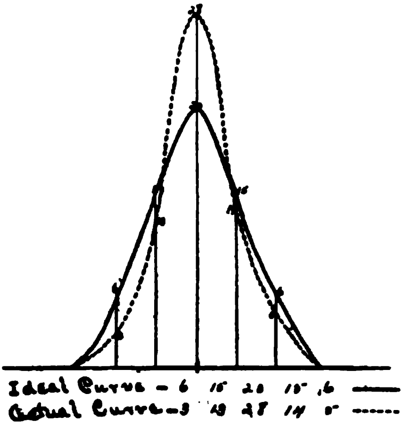
In obedience to the Law of Chance physical measurements tend to group themselves around a mean. The graphical representation of this grouping of individuals is the Binomial Curve. The greater the number of data, the more nearly does the graphical representation of actual recurrence of individuals approach the ideal binomial curve; but that a small group of physical phenomena make a fair approximation of the true curve may be observed from the following group of Weight of Infants cited from Quetelet's "Treatise on Man," p. 63, Chap. II.

Male Infants Weighing	Individuals.
From......2.0 to 2.5 Kilos......	3.
From......2.5 to 3.0 Kilos......	13.
From......3. to 3.5 Kilos......	28.
From......3.5 to 4.0 Kilos......	14.
From......4. to 4.5 Kilos......	5.
Total........................	63.

Compare with this table the coefficients of $(x+y)^6$ and note the close correspondence of the actual to the ideal binomial curve.

	Actual	Calculated	Difference
	3	6	-3
	13	15	-2
	28	20	+8
	14	15	-1
	5	6	-1
Total,	63	62	1

That the *actual* Binomial Curve assumes the general form and symmetry of the *calculated* is evident from the following graphical representation. If the total number of individuals was multiplied by 100 or even by 10, the *actual* curve would probably approach the *calculated* so closely that the points of divergence could scarcely be detected.



II.

The following experiment was made with a view of testing the validity of the mathematical postulate, that the Law of Probability determines the distribution of every form of physical data, inanimate as well as animate.

Four dice were thrown and the sum of the faces noted. Manifestly the sums would range from 4 to 24, and a total of 1,296 throws must be made in order that the sums 4 and 24 should be found each one time out of that number. The final result was as given in Table I:

TABLE I.

Distribution of the Sums of the Faces of Four Dice Thrown 1296 Times.

The Sums of the Faces.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Actual Distribution.	1	6	13	25	28	54	87	103	130	135	147	132	116	107	78	54	34	25	10	9	2
Calculated Distribution.	1	4	10	20	35	56	80	104	125	140	146	140	125	104	80	56	35	20	10	4	1
Difference.	0	2	3	5	7	2	7	1	5	5	1	8	9	3	2	2	1	5	0	5	1

TABLE II.

921 Throws Were Made before the Mathematical Calculation of the Distribution of Sums Forming the Ideal Binominal Curve Was Attempted. Combination of Results Is Shown Below:

The Sums of the Faces.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
First Attempt.	1	4	9	15	18	43	55	78	90	102	104	97	93	73	52	33	20	18	8	7	1
Second Attempt.	0	2	4	10	10	11	32	25	40	33	43	35	23	34	26	21	14	7	2	2	1
Total.	1	6	13	25	28	54	87	103	130	135	147	132	116	107	78	54	34	25	10	9	2

In comparing the actual and calculated distribution very slight differences may be noted, but the results are very close.

It is especially noteworthy that the sum 14, which is the mean of all the sums, occurred 147 times instead of the calculated number 146, an error of one individual for the mean out of 1,296 throws. The graphical representation of the actual curve of these data would not differ sufficiently from the calculated curve to be distinguishable by the eye. But this correct proportion of distribution was not constantly preserved throughout the course of the experiment. As will be noted in Table II, at the end of 921 throws the sum 13 was almost equal in occurrence to 14; sums 15 and 16 were almost the same, etc. For several minutes at a time various sums would seem to obtain the lead, and a curve constructed from the data at such times would have presented a very ragged appearance; but another sum would in turn take the lead and the equilibrium of the curve soon be comparatively restored. As the throwing was absolutely fair and regular we are forced to apply the terms of "chance" or "luck" to these erratic variations from the Law of Probability, but to assert also that with an unlimited number of data, there is no such thing as chance in the popular sense. All phenomena are ultimately subject to the Law of Probability.

APPENDIX B.

I.

In the introduction he discusses the regulation of human actions by fixed laws, methods of study and interpretation of the laws relative to man, causes which influence man, the object of his Treatise, and the importance or dignity of the inquiries relative to man.

The Contents of the Treatise are as follows:

Preface to the present edition, by M. Quetelet.

Introductory:

Book I. Development of the Physical Qualities of Man.

Chapter I. Of births in general, and of fecundity.

Chapter II Of the influence of natural causes on the number of births.

Chapter III. Of the influence of disturbing causes on the number of births.

Chapter IV. Of still-born children.

Chapter V. Of the influence of natural causes on mortality.

Chapter VI. Of the influence of disturbing causes on mortality.

Chapter VII. Relations of population to social prosperity.
Book II. Development of Stature, Weight, Strength, etc.
Chapter I. Of the development of height.
Chapter II. Of the development of the weight, and its relations to the development of the height of the body.
Chapter III. Of the development of strength or power.
Chapter IV. Inspiration, pulsation, swiftness, etc.
Book III. Development of the Moral and Intellectual Qualities of Man.
Chapter I. Development of the intellectual qualities.
Chapter II. Development of moral qualities.
Chapter III. Of the development of the propensity to crime.
Book IV. Of the Properties of the Average Man, of the Social System, and of the Final Advancement of This Study.
Chapter I. Properties of the average man.
Chapter II. Of the ultimate progress of our knowledge of the law of human development.
Author's Appendix.
Translator's Appendix.

II.

"M. Poisson, some years ago, made researches into the singular circumstance that the ratio of male to female births for natural children differs sensibly from the general ratio of France taken altogether; and he has obtained from the documents of 1817 to 1826 inclusively, 21-20ths instead of 16-15ths. M. Mathieu also had arrived at a similar result." Comparatively fewer boys, then, are born among illegitimate children.

III.

"Mr. Sadler, moreover, finds that, in considering the age of the father or the mother separately, we do not observe any difference of facility in producing infants of one sex rather than of another. This facility, according to him, only depends on the relative ages of parents. Lastly, in extending his researches to widows and widowers, Mr. Sadler further finds, that widowers tend to produce more female children." For 107 examples cited the average ratio of female births to males is 100 to 79.7.

Quetelet inclines to the view that of the probable causes which may produce inequality between the births of male and female children the most influential is evidently that which the difference in age of parents produces.

Summing up the discussion of the "Influence of Age on the Fecundity of Marriages" he concludes that

1. Too premature marriages bring on sterility, and produce children who have less likelihood of living.

2. A marriage, if it be not barren, produces the same number of births, at whatever period it takes place, provided that the man's age does not exceed 33 or that of the woman 26 years: after these ages the number of children produced diminishes.

3. From the preceding result, and from a consideration of the probability of life, we may infer that it is before the age of 33 years of the man and 26 of the woman, that we observe the greatest fecundity.

4. If we may reckon the respective ages of married persons, we find that, all things being equal, the marriages most productive are those in which the man is at least as old as the woman, or older, yet not much exceeding her time of life.

IV.

Months	Births		Births	
1815-1826	Town	Country	Town	Country
January,	68,255	159,987	1.067	1.102
February,	71,820	170,699	1.122	1.177
March,	69,267	164,851	1.083	1.137
April,	66,225	147,118	1.035	1.014
May,	62,102	134,446	0.971	0.927
June,	58,730	125,020	0.918	0.862
July,	57,151	121,572	0.895	0.838
August,	59,620	131,657	0.932	0.908
September,	62,731	144,389	0.980	0.995
October,	62,500	146,362	0.977	1.009
November,	64,273	146,285	1.005	1.009
December,	65,120	148,186	1.018	1.022

The foregoing table, based on observations in Buenos Ayres, of the Southern Hemisphere, adduced by M. Villermé, shows that the greatest number of births are "in July, August, and September, that is to say, in winter; and the fewest number in January and May, or in summer. The alternation of maximums and minimums follows that of the seasons precisely. The influence of the different positions of the sun with respect to the earth, or the monthly distribution of conceptions, and consequently of births, is, therefore, very certain."

"The maximum of births in February supposes the maximum of conceptions to happen in the month of May, when the vital powers regain all their activity after the rigours of winter."

Should we not be correct in concluding from the preceding results, that climates most favorable to fecundity are those which enjoy a mild temperature, and that excess of cold or heat should prove unfavorable to human procreation?

V.

"The Influence of the Hours of the Day Upon Fecundity."

According to twelve years of observation in Brussels about five children are born during the night to every four born during the day. Also births are generally most numerous towards the hours of midnight and mid-day.

VI.

Chapter V. On the influence of natural causes on mortality.

The influence of locality upon mortality is estimated by the ratio of deaths to population. A summary of the data from three principal regions of Europe gives the following result:

	One Death for
In the North of Europe......	41.1 inhabitants
In Central Europe	40.8 inhabitants
In Southern Europe	33.7 inhabitants

"Upon the whole, the mortality is greater in the south of Europe than in the north or centre; but it is England which turns the balance in favor of the north of Europe." Another table shows that mortality increases as we approach the equinoctial line. The effect of town and country residence in Belgium is set forth by the following table:

	Population	Aver. No. of Deaths	One Death to Inhabitants
Cities,	998,118	27,026	36.9
Country,	3,066,091	65,265	46.9

He concluded that "the mortality is less in temperate climates than in the north or south, and that it is greater in cities than in the country." M. Villermé sustains the same view. Quetelet cites also this table:

States	Inhabitants		
	To one Marriage	To one Birth	To one Death
England,	134.00	35.00	58.00
Guanaxuato,	67.76	16.08	19.70

"What we have observed in the provinces may also be noticed in other countries, where we equally observe a great mortality and a great fecundity. Of this truth, England and the Republic of Guanaxuato offer striking examples. These are, so to speak, the two extreme limits in the scale of population, and, we may also add, in the scale of civilization."

The latter was doubtless intended merely as a comparative statement for the period in which Quetelet wrote this treatise. Guanaxuato could not be so rated in the scale of civilization today.

"It may be said that a country proceeds onward to a more prosperous condition when fewer citizens are produced, when those existing are better preserved. The increase then is entirely to its advantage; for, if the fecundity be less, the useful men are more numerous, and generations are not renewed with such rapidity, to the great detriment of the nation."

VII.

Age.	Degrees		Age.	Degrees	
	Of Mortality.	Of Viability.		Of Mortality.	Of Viability.
1 month	960	1	23	12	85
2 months	273	4	24	12	82
3 months	200	5	25	12	83
4 months	163	6	30	11	95
5 months	135	7	35	11	90
6 months	127	8	40	12	83
1 year	115	9	45	13	77
2 years	77	13	50	15	67
3 years	60	17	55	20	50
4 years	27	37	60	27	37
5 years	21	48	65	39	26
6 years	15	67	70	57	18
7 years	12	83	75	187	11
8 years	10	100	80	129	8
10 years	8	131	85	174	6
14 years	6	161	90	250	4
15 years	7	155	95	283	3
20 years	10	100	100	4,217	2

The age of shortest viability would then be immediately after birth, and the age of longest viability immediately before puberty: the viability of the child after the first month of life is greater than that of the man nearly 100 years old.

VIII.

Months 1815-1826	Deaths Town	Deaths Country	Ratio Town	Ratio Country
January,	59,892	116,129	1.158	1.212
February,	56,267	114,758	1.088	1.198
March,	54,277	114,244	1.050	1.192
April,	51,818	107,264	1.002	1.120
May,	49,911	93,714	.946	.978
June,	46,607	84,464	.901	.882
July,	45,212	77,555	.874	.809
August,	47,032	78,802	.910	.822
September,	50,191	35,131	.971	.888
October,	51,649	89,514	.999	.934
November,	52,908	89,585	1.024	.935
December,	55,631	98,705	1.024	.935
Average,	51,700	95,822	1.000	1.000

"Let us here again remark that the influence of the seasons is more evident in the country than in the towns where there is a greater combination of means to withstand the inequality of the temperature."

M. Villermé points out that the maximum of mortality in Paris is now in the spring, during March or April, while during the years of the 17th century of which there are accounts, the maximum occurred in the autumn. "This results," he says, "from the progressive diminution of the epidemics which so often desolated Paris formerly, at the end of summer." He also makes the observation "that the epidemics which result from famine al-

Localities.	Of 10,000 Deaths which have taken place.	
	From birth to the most advanced age, before the age of 10 yrs. had been completed there were:	From the age of 10 to the greatest degree of longevity, from the 10th to the 40th there were:
In the whole of the agricultural districts..	3,505	3,142
In the whole of the districts partly agricultural and partly manufacturing...........	3,828	3,318
In the whole of the manufacturing districts................	4,355	3,727

ways exercise their ravages at annual periods, when food is most scarce, difficult to obtain, or the diseases which induce painful conditions of life, for a great number of men, are more numerous or more aggravated; and they cease after harvest, which brings back abundance."

It would appear evident that the most favorable state for man is a regular life which produces a sufficiency for his wants and which is not agitated by the passions or irregularities of town life.

Misery, with the privations which it brings in its train, is one of the most powerful causes of mortality. M. Benoiston de Chateauneuf has given a new confirmation of this observation in a paper entitled "On the Duration of Life in the Rich and the Poor."

Age	Mortality		
	Of Common Rank	Of Rich	Of Poor
20 to 30 years,	1.41	0.00	2.22
30 to 35 years,	1.56	0.85	1.43
35 to 40 years,	1.71	1.20	1.85
40 to 45 years,	1.91	1.85	1.87
45 to 50 years,	2.21	1.59	2.30
50 to 55 years,	2.68	1.81	2.58
55 to 60 years,	3.39	1.68	4.60
60 to 65 years,	4.41	3.06	5.76
65 to 70 years,	5.85	4.31	9.25
70 to 75 years,	7.80	6.80	14.14
75 to 80 years,	10.32	8.09	14.39
80 to 85 years,	13.15	11.58	
85 to 90 years,	13.55	16.29	
90 to 95 years,	14.05		

The most favorable state of a people is that in which they have a means of providing for every real want without exceeding the bounds of temperance, and without creating artificial wants. The above table indicates the increased mortality among the poor. The registers of insurance societies likewise tend to point out the greater mortality of the poor.

M. Benoiston de Chateauneuf also demonstrates that the mortality of the soldier from natural causes is greater than that of the mass of the people. The maximum of deaths among soldiers is in the summer and autumn, while the minimum is in the winter while in winter quarters.

(From Translator's Appendix.)

PHYSIOLOGICAL AND PATHOLOGICAL STATISTICS.

X.

The Heart:

1. The velocity of the heart's action is in the inverse ratio of the age of the individual, being quickest in young persons, slowest in the aged. There may be exceptions, but they do not affect the law.

2. The question of an average pulse for all ages has hitherto been determined upon insufficient data.

3. There is a morning acceleration and an evening retardation in the number of the pulsations of the heart independent of any stimulation.

4. The excitability of the heart undergoes a daily revolution, that is, food and exercise most affect the heart's action in the morning and during the forenoon, less in the afternoon and least of all in the evening. Hence we should infer that the pernicious use of spirituous liquors must be greatly aggravated in those who drink before dinner.

5. Sleep does not farther affect the heart's action than by a cessation of all voluntary motion and by a recumbent position.

6. In weak persons muscular action excites the action of the heart more powerfully than in strong and healthy individuals, but this does not apply to other stimulants, to wine, for example, or spiritous liquors.

7. The effects of the position of the body in increasing or diminishing the number of pulsations is solely attributable to the muscular exertion required to maintain the body in sitting or erect position; the debility may be measured by altering the position of the person from a recumbent to a sitting posture or to the erect.

8. The law of the differential pulse is not universal. There are exceptions to be found even in persons of perfect health. It is possible that there may be some in whom the diurnal revolutions of the pulse take place only in consequence of the use of stimulants. This is not proved satisfactorily.

9. The most powerful stimulant to the heart's action is muscular exertion. The febrile pulse never equals this.

10. The law of the relation between the inspiration and pulsation of heart has been stated by M. Quetelet.

REPORTS OF SOCIETIES.

THE NEW HAVEN PHYSICAL EDUCATION SOCIETY.

The regular monthly meeting of the New Haven Physical Education Society was held at the Yale Psychological Laboratory on Tuesday evening, November 14th. All business was postponed until after an interesting and instructive talk on "The Psychological Aspects of Physical Education" by Dr. E. W. Scripture, director of the laboratory. After the reading of the minutes, the report of committees and the appointment of a committee of three to solicit new members, the meeting adjourned, and an invitation to look over the laboratory and apparatus was accepted.

ANNIE RENNARD HUGHES, Secretary.

November 27, 1899.

NEW YORK PHYSICAL EDUCATION SOCIETY.

The regular monthly meeting of the Physical Education Society, of New York and vicinity, was held for October on the 19th, in Trinity School, 139-147 West 91st street. Mr. Alexander E. Wilson-Barker was appointed reporting secretary. The Society accepted the offer of Dr. Watson L. Savage, to make the reception-room at his Physical Development Institute in 59th street the repository for the library, to which some thirty new volumes have recently been added by the efforts of the second standing committee, Miss E. C. MacMartin, chairman. The third standing committee, through its chairman, Dr. Savage, made a report upon physical training in New York City, as promised and advertised by public and private schools and the actual fulfillment or non-fulfillment of the promises. Dr. Savage also read a carefully prepared paper upon "Athletics Graded," which was especially well received.

Miss Fisher, Miss Bush, Miss Otis and Mr. Merritt contributed reports of lectures and discussions delivered and held at the Springfield Conference in June.

The following new members were elected: Mr. Charles J. Velte Mr. J. R. Seikel, Miss Agnes A. Jones, Miss Bertha Talbot

Peterson, Miss Marie Talbot Peterson, Miss Augusta Lane Pat rick, Miss Marion Hunter, Mr. Otis C. Skeel, Mr. Charles Edward Hammett, Miss Mae Halsted Beattys.

J. BLAKE HILLYER, Secretary.

SYRACUSE PHYSICAL EDUCATION SOCIETY.

In December, 1898, cards were sent out calling for a meeting to be held at the Board of Education office. Twenty people responded to the call. Other meetings were held for the discussion of ways and means, and finally resulted in the formation of a local society, christened "The Syracuse Association for the Advancement of Physical Training," with a membership of eleven: Dr. Mary Scott, Miss Emma Leveau, Miss Emily Alvord, Mrs. E. B. Ayers, Miss Edith Lathrop, Dean Albert Leonard, Colonel Verbeck, Dr. W. Plant, Mr. Golden, Mr. J. R. Scott and Miss Thayer.

The following officers were elected: President, Colonel Verbeck, St. John's School, Manlius, N. Y.; vice president, Dean Albert Leonard, Syracuse University; treasurer, Miss Emma Leveau, 608 University avenue; secretary, Miss Ada F. Thayer, 503 East Willow street; executive committee, Colonel Verbeck, Dean Leonard, Dr. Julette Hanchett, Miss Emma Leveau, Miss Alvord and Mr. J. R. Scott.

Two meetings have been held, one in March and another in April.

The March meeting was opened by a paper on "The Literature of Physical Training," by Dr. Mills. The president, Colonel Verbeck, of St. John's Military School, gave a talk on "Physical Training as a Tool in Mental and Physical Development."

The April meeting was held in the University gymnasium. The paper of the evening, on "The Theory of German Gymnastics," was given by Mr. Scott, and illustrated by a class of young ladies. The May meeting was postponed.

ADA F. THAYER, Secretary.

REPORT OF THE COUNCIL.

October 6th, 1899. Present: Dr. Sargent, Dr. Hitchcock, Dr. Mulliner, Miss Narey, Mr. Eberhard.

REPORT OF THE CORRESPONDING SECRETARY.

Receipts—For July: dues, $23; sale of reprints, etc., $0.25; society initiation fee, $5; total, $28.25. For August: dues, $22; sale of REVIEW, $1; sale of reprints, etc., $2.84; sale of reports, A. A. A. P. E., $9; total, $34.84. For September: dues, $14; subscriptions to REVIEW, $3.50; total, $17.50. Total receipts for July, August and September, $80.59. Expenditures—For July: postage for correspondence, $1.40; postage for REVIEW, $7.37; clerical work, etc., $8.40; total, $17.17. For August: postage for correspondence, $3.60; postage for REVIEW, $0.07; clerical work, etc., $4.35; total, $8.02. For September: postage for correspondence, $2.67; postage for REVIEW, $0.38; clerical work, etc., $8.55; total, $11.60. Total expenditures for July, August and September, $36.79.

The following persons were elected to membership: Mr. W. M. McDermott, Johns Hopkins University, Baltimore, Md.; Miss Augusta Lane Patrick, Montclair, N. J.; Mr. E. G. Routzahn, Dayton, O.; Miss Nellie E. Leyde, Cedar Rapids, Ia.; Mr. W. L. Kershaw, Melrose, Mass.; Mr. Montague Gammon, Rome, Ga.; Miss Helen Woodsman, Y. W. C. A., Omaha, Neb.; Mr. J. B. Patterson, Wooster, O.; and Miss Gertrude Campbell, Jacksonville, Fla.

After a general discussion, the meeting adjourned.

MARY REES MULLINER,
Recording Secretary, pro tem.

EDITORIAL NOTE AND COMMENT.

The value of the department of bibliography, now incorporated into the REVIEW, will be greatly increased if members will send to the editor titles or abstracts of important articles upon physical education which come to their notice. By such co-operation, the department may be made of essential value to students in all branches of physical education.

It will be remembered that the fiscal year of the A. A. A. P. E. begins on January 1st, 1900. Members of local societies are requested to pay their dues, both local and national, to the treasurers of their societies. Members at large should send their dues, preferably by order upon the Cambridge Post-Office, to the Corresponding Secretary of the National Council. Promptness in the payment of dues on the part of each member will greatly facilitate the conduct of the Association's business.

The Corresponding Secretary will gratefully receive correct addresses for the following members of the A. A. A. P. E.: Miss Jessie R. Adams, Miss Ella L. Burbank, Mrs. G. O. Callowhill, Miss Janet Harvey, Miss Clara J. Horton, Miss Ella C. Jordan, Mr. Charlemagne Koehler, Miss Mary S. Macomber, Miss Frances Mitchell, Miss Mary M. Pomeroy; Miss Mary Asinith Reed, Miss Flora Van Sickler, Miss Blanche Schofield, Miss Helen R. Swift and Mr. Guido Werner.

This number has been greatly delayed by a failure to get from the manufacturers the promised type for the special letters required by the French, German, and Spanish titles.

In future each REVIEW will be issued in its name month.

NEWS NOTES.

The statistics of class honors from 1870 to the present time show that two-thirds of the class marshals have been chosen from Massachusetts, that more than seven-ninths of the whole number of marshals are to be classed as athletes and three-fifths as club men, and that 29 members of the 'Varsity crew and 28 members of the 'Varsity eleven, have been elected marshals as against 12 members of the 'Varsity nine. This may be considered to illustrate one of two things, either that athletics contribute to the popularity of the men or that the popular men make the teams and crews, probably the former.

Gymnastic work has been introduced in the girls' department of the University of Pennsylvania, Philadelphia. A gymnasium has been built, which, though small, will have every convenience. The work is compulsory for undergraduates, two hours a week being required.

The New Haven Y. W. C. A. has recently built and equipped a new gymnasium.

According to a return of the London (Eng.) school board, it appears that over thirty thousand children have received instruction in swimming during the past year. This number includes both boys and girls.

In a new school at Halifax (Eng.) when the bath was first opened, 50 per cent of the scholars had to be washed before they were allowed to enter the swimming bath. Now the proportion is 5 per cent. The others wash at home.

The following definitions have been suggested by a contemporary medical journal:

Christian Science—Suggestion plus absurdity.
Divine Healing—Suggestion plus faith in God's mercy.
Osteopathy—Suggestion plus massage.

Hydropathy—Suggestion plus water.
Metaphysical Healing—Suggestion plus fog.
Hypnotism—Suggestion plus sleep.
Spiritualism is somnambulism, and
Theosophy is an intellectual pleasantry.
—New York Medical Journal.

On being admitted to the Sheffield (Eng.) High School, every girl is examined by a lady specialist, and the physical instruction is adapted to meet her personal requirements. In addition to ordinary gymnastics, the general training includes cricket, tennis, hockey, gardening and cycling. In cases of defective organization, all work after morning lessons is prohibited, and its place is taken by suitable out-of-door exercise. The effect of all this attention to health and physical development is seen in an improved morale, and in quickened mental alertness and vigor. — The Gymnasium (Eng.).

There is only one means of arriving at a truly harmonious and complete development of the body, and that is by means of free-standing movements, portable apparatus and fixed gymnastic instruments. Games, combats, sports, whatever they may be, cannot attain this end, for two reasons: (1) Instead of allaying and tempering the action of the central nervous system, they excite it. (2) Instead of neutralizing the pernicious influence of the one-sided movements caused by handicrafts and daily occupations, they constitute in themselves one-sided exercises.—J. J. Happell. The Gymnasium (Eng.).

The following competitions were held at Eaux-Vives, Switzerland, on the occasion of a cantonal festival in addition to the numerous gymnastic items: Swiss trouser wrestling, catch-as-catch-can wrestling, putting the stone, climbing, pole jump, long jump, obstacle race, individual swimming, team swimming.—The Gymnasium (Eng.).

ABSTRACTS.

Conditions of Sleep Among My Pupils. Joh. Friedrich, Wurzburg. Die Kinderfehler, January, 1899, p. 37.

During the school year of 1897-98 in the months of January, February, March and June, the following set of questions was submitted to my pupils (the 10 to 12-year-old sons of small merchants, mechanics, laborers and employees in railroads and post-offices) at the beginning of the day's instruction, in order to determine their sleep conditions. As the purpose of the questions was withheld, the results obtained may be considered reliable.

I. Do you sleep alone, or with your parents, brothers, sisters or others of the household, in one bed?

RESULT:

1. Alone in bed	20	i.e.	37 per cent
2. Two in a bed	33	i.e.	61 per cent
(a) With younger brothers	9	i.e.	17 per cent
(b) With older brothers	12	i.e.	22 per cent
(c) With brothers and sisters who had outgrown school	1	i.e.	2 per cent
(d) With sisters	5	i.e.	9.3 per cent
(e) With mother	3	i.e.	5.5 per cent
(f) With father	3	i.e.	5.5 per cent
(g) With other members of the household	0	i.e.	0. per cent
3. Three in a bed	1	i.e.	2. per cent

II. How long do you sleep (from hour of retiring to hour of rising)?

The answers to this question showed that a large majority went to bed between eight and nine o'clock; that only three went to bed before eight, whereas some retired as late as ten or eleven. The rising hour was ordinarily between 6.45 and 7.45; some rose regularly at 5.30, 5.45 or 6, in order to perform various household duties. These latter were very weary and sleepy during the school session. The mean amount of sleep was between nine and ten hours; the least amount, 7 1-4 to 7 3-4 hours.

III. Do you, or do you not, dream? Do you awake during the night, and if so, why?

From this question the following results were obtained: Between five and fifteen dreamed, and some, especially those who were nervous and weak, dreamed almost every night. The number whose sleep was broken was from twenty to thirty-five. The causes were noises, physical pain as headache or toothache, physical necessities, and psychical disturbances as talking or crying in sleep. Of these the physical causes were the most prevalent.

Although not wishing to over-emphasize the value of these investigations, I can but feel that they greatly facilitated my understanding of the individual needs of my pupils.

R. K. F.

The Physiological Basis of Massage and Mechanical Therapeutics, with Consideration of their Therapeutic Application in Internal Medicine. Dolega.

Dolega has performed a number of experiments on the physiologic action of massage, muscular exercise, etc. He finds that the massage of small parts of the body, such as the forearm, does not cause increase in blood pressure. Prolonged light massage of the skin causes slight increase in blood pressure. More vigorous massage of the muscles causes a sinking of blood pressure. As a result, he believes that massage produces alterations in the blood pressure, and, therefore, in the movement of the blood. Massage also has an influence upon distant organs, as a result of reflex action. Passive movements are particularly valuable, either to prevent bad results of inactivity of the limbs or joints, or to correct them when they have occurred. Physical exercise is employed particularly in reference to heart disease, and it is found that there is considerable difference in its effects according as the patient has or has not valvular lesion. Resistant movement continued for five minutes upon a healthy, vigorous man has no effect. Persistent muscular effort caused an increase in the frequency of the pulse and elevation of the blood pressure; thus, rapid running up and down stairs caused both these changes with diminished pulse volume at the radial. In two cases of compensated mitral insufficiency, the increased frequency of the pulse was accompanied by sinking of the blood pressure. Vigorous rapid movements caused increased rapidity of the pulse, which became unequal, and diminution of the blood pressure. Systematic respiratory gymnastics in cases of valvular disease with rapid heart caused diminution in the frequency of the pulse with increase in the blood pressure. In conclusion, Dolega believes that healthy persons are not affected by the resistant movements, but that in cases of rapid heart some improvement in the pulse-frequency may be obtained. Usually the effects wear off in the course of 15 minutes. Massage and mechanotherapy is, therefore, a form of treatment that, when intelligently used, can be of great value in both local and general disease.—Abstracted by the Philadelphia Medical Journal, December 16, 1899, p. 1174.

BOOK NOTICES AND BIBLIOGRAPHY.

Revue Encyclopedique Larousse, No. 313, 2 Septembre, 1899. A special number devoted to Physical Education. Pages 84, illustrations 185. Librarie Larousse, 17 Rue Montparnasse, Paris. Price 2 francs.

It is a striking instance of the present widespread interest in physical education that one of the leading illustrated weeklies of Paris has devoted to that subject an entire number of more than four times the usual size. The 31 signed articles, varying in length from one to five pages, are arranged in three groups: the first relates to physical education from a scientific point of view, the second treats the subject from a technical and practical standpoint, and the third presents methods of applying gymnastics for purposes of physical education.

After an article on physical education in Greece and at Rome, and another on the revival of interest in physical training in France since 1880, Part I. contains, among others, the following titles: The physiology of movements, the capillary pulse and its relations to exercise, the organization of movements, voluntary attention in physical education, fatigue, physical education in the school, physical education from the sociological point of view. Part II. is given up almost altogether to a discussion of various forms of recreative and athletic sports, including field and track athletics, wrestling, boxing, fencing, marksmanship, dancing, horsemanship, mountain climbing, bicycling, rowing, swimming, tennis and foot-ball. Part III. contains a short article on German gymnastics; a longer one on Swedish gymnastics by Victor Balck, describing in detail the work of the Royal Gymnastic Central Institute at Stockholm, and well illustrated; others on the gymnastic societies of France, French gymnastics, physical training in the French army, and physical education in France in the last two decades.

The numerous illustrations, mainly taken from photographs, are not the least noteworthy feature of this very unusual number. Many of the articles, and particularly those in Part III. relating to physical training in France, contain facts and figures which give to the periodical a permanent value and recommend it strongly to every serious student of physical education.

F. E. L.

Evolution by Atrophy in Biology and Sociology. By Jean Demoor, Jean Massart, and Emile Vandewelde. Translated by Mrs. Chalmers Mitchell. New York: D. Appleton & Co., 1889. pp. 322.

This treatise is the result of an investigation instituted by the Institute at Brussels in 1894, the object of the investigation being to ascertain the normal conditions under which society exists, and the laws governing their evolution. It was the belief of the Institute that the advances in the natural sciences during the 19th century had not been sufficiently assimilated and related to sociological problems. The authors hold that the comparisons between social organizations and animal organizations with animal or vegetable organisms have been both exaggerated and premature; and they attribute the recent protests of American economists to these exaggerations.

This blunder, say the authors, has been due to the fact that sociological investigations have hitherto been conducted either by naturalists with a limited knowledge of social questions, or by sociologists whose training in biology was incomplete and superficial. The effort in the present volume has been to co-ordinate and combine these two hitherto conflicting interests. The reconciliation of difficulties in these two great departments of human thought can scarcely be said to be accomplished in the present undertaking. Perhaps it is too soon to expect such a reconciliation, and that such a book as Evolution by Atrophy may be a contribution to its ultimate solution.

WILL S. MONROE.

A Study of the Kindergarten Problem. By Frederic Burk and Caroline Frear Burk. San Francisco: Whitaker & Ray Co., 1899. pp. 123.

Dr. Burk in the present volume has approached the Kindergarten problem in a thoroughly scientific manner from the standpoints of genetic psychology and neurology. It is the conviction of the authors that the fundamental weakness of the prevailing kindergarten consists in the gross neglect of instincts which properly belong to its period, and that it attempts prematurely to develop instincts which do not bud until the adolescent period.

A break with the traditional kindergartens is necessary, and in the reconstruction of a new kindergarten we must turn to child study, whose investigations bear so directly upon the period of infancy and to some of the sister sciences—biology, neurology, physiology, embryology and anthropology.

One of the best chapters in the book is "Some Neurological Conditions of Childhood," in which Dr. Burk clearly shows that modern neurology furnishes a sound and scientific basis for the principle of stages of development. "The nervous," he says, "which is an essential factor not only in all physical but in all mental activity as well, is a republic of more or less independent parts, each having for its function some particular physical or mental activity." The chapter on "Physical Culture," also by Dr. Burk, is based on neurological foundations.

Mrs. Burk contributes a noteworthy chapter on the play of the child, and Mrs. Juliet Powell Rice a brief but suggestive chapter on music. In addition the book contains chapters on language, love of nature, counting and number, and children's spontaneous choice and use of kindergarten materials. Here is clearly a new method of approach to the kindergarten problem, a method not based on general philosophic conceptions, but on the inductive investigations of child psychology and cognate sciences. The book does credit to both the authors and the field they represent. It deserves wide reading—not alone by kindergarteners, but by students of education generally.

WILL S. MONROE.

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Physical Training in New England Schools, by W. Scott, A.M., Secretary of New England Education League. With Letters from Secretaries of Education, Superintendents, Gymnasium Directors, etc. New England Education League, 10 Hollis street, Cambridge, Mass.; 13pp., 6 cents, including postage.

This pamphlet has been issued under the auspices of the New England Education League. It calls attention to the importance of care of health, bodily development of pupils and physical surroundings of schools, and advocates playgrounds, playrooms, gymnasia and physical supervision. In its preparation correspondence was opened with prominent educational leaders in New

England, physical directors of colleges and also city superintendents of New York, Philadelphia and the gymnastic instructor at West Point. It was read before the Boston Physical Education Society in the early part of this year and contains letters from the sources named and discussion by Dr. D. A. Sargent and Professor W. T. Sedgwick. It gives a brief presentation of the present status of the subject in New England education and is of value to physical directors, teacher and parent, and is designed to interest the public in this important side of education.

W. S.

Monatsschrift fur das Turnwesen. Berlin, 1899 Vol. XVIII. (Continued from p. 332).

No. 7–8 (July–August). English Athletic Sports and German Gymnastic Games, Dr. E. Witte (pp. 193-223). A Wand Reigen for Girls and Women, Aug. Hermann. On the Introduction of Youthful and Popular Games in the Town of Sommerfeld (Province of Brandenberg), Bruno Peter. The 4th German Congress for Popular and Youthful Games (Konigsberg i. Pr., June 25 and 26), reported by Alfred Bottcher.

No. 9 (September). The Work of the German Swimming Societies, Dr. Kuppers (pp. 257-267). A Guide to the Treatment of the Theme: How Far is School Gymnastics Lagging Behind the Demands and Wishes of the Authorities, and How is the Condition to be Remedied? Announcements concerning the German Association of Teachers of Gymnastics.

No. 10 (October). Swedish Gymnastics for Girls, Luise von Egidy. Report on the Introduction of Free Instruction in Swimming Among the Poor Children in the Dresden School during the Summer of 1899 (to be concluded in the next number). Announcements, Book Reviews, Miscellaneous Reports and News Items, Contents of Current Periodicals, Book Lists, etc., as usual.

F. E. L.

Deutsche Turn-Zeitung. Leipzic, 1899 (Continued from p. 334.) Vol. XLIV.

No. 31 (August 3). Material for the History of German Gymnastics —XVIII: The Turnvereine Fifty Years Ago, M. Zettler (continued in Nos. 33, 37, 39, 43. V. also No. 23). Report of the Technical Sub-Committee on the 9th German Gymnastic Festival (concluded. V. No. 19). Groups of Exercises for Women: Wands, Heinr. Flugge; Horizontal Bar, H. Munier. Preliminary

Report of the 12th Congress of the German Turnerschaft at Naumburg, July 30 and 31 (continued in No. 35).

No. 32 (August 10). Our Gymnastics from the Standpoint of National Education, Pawel. Glimpses of the History of Gymnastics—VII: The Bodily Exercises and Popular Festivals of Citizens and Peasants in the Middle Ages, A. Thoma. Spanish Bull-Fighters' Dance, J. Reinhardt (concluded in No. 33). Annual Report Presented to the Committee of the German Turnerschaft and to the Congress of that Body in Naumburg in July, by Dr. Ferd. Goetz and Dr. Ruhl. Changes in the Turnfestordnung of the German Turnerschaft Proposed by the Technical Sub-Committee. Laying the Corner-stone of the Jahn Museum in Freyburg a. U. (concluded in No. 35).

No. 33 (August 17). Dr. Kienesberger, Pawel.

No. 34 (August 24). The Session of the Committee of the German Turnerschaft at Naumburg a. S., F. Goetz and Dr. Toeplitz (concluded in No. 35). Prince Bismarck on His School and University Life, Dr. Karl Wassmannsdorff. A New Gymnastic Wand, Dr. Nagel. Exercises in Club Swinging, Peter Blattmann. French Opinions of the Germans, Gustav Retzdorff. 1st National Competitive Meeting of Amateur Athletes in Munich (July 23 and 24).

No. 35 (August 31). 12th Congress of the German Turnerschaft at Naumburg, F. Goetz and Dr. Toeplitz (concluded in No. 36). Groups of Exercises with Iron Wands and on the Horse, Max Bartelt.

No. 36 (September 7). The Barlauf (a running game) Contest between the Berlin Higher Schools on June 19, Theodor Wohlrath. Gymnastics in the Country, Dan. Kappel.

No. 37 (September 14). Reports of Gymnastic Festivals, Gustav Mockel. The Knivsbergfest in Schleswig-Holstein on June 18, Karl Strohmeyer. An Excursion (Turnfahrt) in the Bohmerwald and through Upper and Lower Austria, G. Schlanze.

No. 38 (September 21). Glimpses of the History of Gymnastics—VIII: Swimming and Bathing, Skating, Dancing and Ball Games, by A. Thoma (continued in Nos. 41, 45), Night Schools and the Classes for Juniors in the Turnvereine (Das Zoglingsturnen und die Fortbildungschulen), Gustav Metzke. Literature of German Gymnastics and Games from January 1 to June 30, 1899, by Ferd. Goetz. Groups of Exercises: Wand Exercises and Tactics, the Vaulting Table, the Parallel Bars. Latest Statistics of the North American Turnerbund. Announcements concerning the German Association of Teachers of Gymnastics.

No. 39 (September 28). Gymnastic Ideas before Basedow and Guts-muths in Christian Furchtegott Gellert's "Lectures on Morals" at the University of Leipsic, Dr. Karl Wassmannsdorff. A Simple Wand Reigen for Women, J. Reinhardt.

No. 40 (October 5). What Measures Can the District Organizations (Gaue) Adopt to Promote Gymnastics in the Societies (Vereine), Max Bartelt. Older and Newer Jahn Medals, Dr. Hans Brendicke. Whitsuntide Excursion of the German Gymnastic Society in Stockholm to Aelfkarleo, Aug. Homburg. A Bulgarian Gymnastic Festival (at Sofia). The Game of Zielball (Target Ball), A. Emmermann. Pyramids, R. Kleine (concluded in No. 41). Groups of Exercises with Indian Clubs, P. Blattmann.

No. 41 (October 12). The Olympic Games, Their Degeneration and Their Influence on Greek National Life, by Bernhard Striegler. Points for Teachers of Gymnastics, Friedrich Rosch. Changes in the Societies of the German Turnerschaft, Dr. Ruhl.

No. 42 (October 19). Gymnastics and the Press, R. Gasch. The 1st International Gymnastic Festival was held not in Germany but in Paris in 1865, Dr. Karl Wassmannsdorff. Easter Excursion of the Leipsic Turnverein on April 2 and 3, Hermann Hofmann. A Reigen for Children, P. K. Wendler. Groups of Exercises on the Vaulting Table, H. Munier.

No. 43 (October 26). The Turnvereine and the New Civil Code, Goetz and Leistner. Groups of Wand Exercises, Rudolf Reinhold. A State Inspector of Gymnastics Proposed in Bavaria.

No. 44 (November 2). Kultusminister Dr. Studt, W. Becker. A German Physician's Judgment of Bodily Exercises and Games in 1588 (Jacobus Hoscht), Dr. K. Wassmannsdorff. References to Physical Training in a Philological Work of 1666, Dr. Machnig. The Pentathlon at Hamburg, Otto Wedler. A Wand Reigen, J. Reinhardt. The Turnverein in Moscow. Music and Gymnastics.

No. 45 (November 9). The Turnvereine and the New Civil Code, D. Kappel. A Reigen Introducing Exercises on Four Horses, Jaro Pawel. "For Every German a Weekly Bath."

F. E. L.

Revue Internationale de Pedagogie Comparative, Nantes, France.

March, 1899. Abnormal Pedagogy, by Dr. Hamon du Fougeray.

April, 1899. The Duties of the Primary Teacher in the Education of Abnormal Children, by Ed. Drouot.

May, 1899. Dietetic Treatment of the Nervous Troubles of Speech (abstract of the work of Herman Gutzman).

Special Education of Abnormal Children. Discussion by Dr. Jousset and Dr. Hamon du Fougeray.

June, 1899. Gymnastics for Abnormal Children, Dr. Picard.

Die Kinderfehler, Langensalza, Germany.

January, 1899. A Discussion of the Different Kinds of Mental Disturbances of School Children, by Dr. J. L. A. Koch.

Education of Abnormal Children, by Dr. Jean Demoor. Reviewed by von Thieme (continued in the March number).

May, 1899. Alcohol as the Principal Cause of the Physical and Moral Degeneration of Our Children, by J. Truper.

July, 1899. The Use of the Muscular Sense in the Case of the Weak-Minded, by Dr. Adelbert Kupferschmidt; The Use of Alcohol by the Pupils of a School for Feeble-Minded Children, by the Director of such a School; What Significance in the Diagnosis of Idiocy have the Illusions of Muscular Sense? by Dr. J. Demoor; The Education of Foolish or Weak-Minded Children in Braunschweig.

Pedagogical Seminary, Worcester, Mass. The following titles have been selected from the numbers of this important journal published in the last two years:

July, 1897 (Vol. V, No. 1). A Study in Moral Education, J. R. Street; Some Mental Automatisms, E. H. Lindley and G. E. Partridge; The Psychology and Pedagogy of Adolescence, E. G. Lancaster; Difference Between Children and Grown Up People from the Child's Standpoint, Mary Louch; A New Aspect of Child Study, Harriet A. Marsh.

October, 1897 (Vol. V, No. 2). Suggestions for a Philosophy of Education, A. Caswell Ellis; Eye Defects in Students and Children, Edgar James Swift; A New Feature in Manual Training, Gertrude A. Stoker; An Early Phase of the Manual Training Movement, John A. Hancock.

January, 1898 (Vol. V, No. 3). Methods of Manifesting the Instinct for Certainty, M. H. Small; Truancy as Related to the Migratory Instinct, Linus W. Kline; Child Fetiches, George M. Gould.

April, 1898 (Vol. 5, No. 4). The Only Child in a Family, E. W. Bohannon; Some Practical Aspects of Interest, Joseph S. Taylor; The Child and The Weather, Edwin G. Dexter; The Interests of Children in the Reading Work of the Elementary Schools, Clark Wissler; Bibliography of Child Study, Louis N. Wilson; Formal

Education from the Standpoint of Physiological Psychology, D. D. Hugh.

October, 1898 (Vol. VI, No. 1). From Fundamental to Accessory in the Development of the Nervous System and of Movements, Frederic Burk; Inhibition, H. S. Curtis; Notes Abroad, Herman T. Lukens.

March, 1899 (Vol. VI, No. 2). Psychological, Pedagogical, and Religious Aspects of Group Games, Luther Gulick; The Money Sense of Children, Will S. Monroe; Home and School Punishments, Charles H. Sears; The Teaching Instinct, D. E. Phillips.

September, 1899 (Vol. VI, No. 3). Amusements of Worcester School Children, T. R. Croswell; Status of Child Study in Europe, Will S. Monroe; Bacteriological Study of School Utensils, Dr. Mary L. H. Arnold; Bibliography of Child Study for the year 1898, Louis N. Wilson.

Dietetic & Hygienic Gazette, New York, N. Y. Selected titles.

September, 1899 (Vol. XV, No. 9). The Physiological Basis of Hydro-Therapy, by Otto Juettner, Sc.M., Ph.D., M.D.; Classification of Hydriatic Effects Used in the Treatment of Disease, J. H. Kellogg, M.D.; Chauncey M. Depew's Hygienic Principles for Individuals and the Nation; Play Sixty Years Ago; Greek Games; The Developmental Influences of Play; Play as a Factor in Development, G. W. Fitz.

October, 1899 (Vol. XV, No. 10). Light and Air in the Treatment of Consumption in Colorado, Charles Fox Gardiner, M.D.; Hydro-Therapy, A. C. Haven, M.D.; The Importance of a Knowledge of the Phylogenetic Development of the Child in the Prevention of Children's Diseases, E. Stuver, M.D.; Swimming as Exercise; Growth and Physical Training; Public Baths in New York; Swimming and Swimming Baths, M. Augusta Requa, M.D.; Swimming and Its Relation to Health.

November, 1899 (Vol. XV, No. 11). The Human Foot, Dr. R. W. Lovett; Mechanics of the Foot, Dr. Royal Whitman; The "Flexion" Style of Marching; The Human Foot and Its Coverings; Physical Training and Psychology, Professor William James; The Position of Physical Training in Education, President C. W. Eliot.

December, 1899 (Vol. XV, No. 12). Posture; Posture and Dress; How to Go Upstairs; One Way to Acquire an Erect Carriage; West Indian Carriers; Leonardo da Vinci, the Many-sided Man; Hunting as Physical Training; Cardiac Overstrain in the Young; Physical Education Society of New York and vicinity, October Meeting.

The Posse Gymnasium Journal, Boston, Mass.

September, 1899. The Value of Competitive Gymnastics (continued), by Baroness Rose Posse; Progression (continued), by Baron Nils Posse; The Physiology of the Muscular System (concluded), by Helen W. Leach; A Small Boy's Review of Anatomy, M. P. C.; The Ptomaine.

October, 1899. Modesty in a Gymnasium Girl, by M. P. C.; The Value of Competitive Gymnastics (concluded), by Baroness Rose Posse; Progression (continued), by Baron Nils Posse; The Lymphatic System, by Grace M. Boswell.

November, 1899. A Discussion of Examinations, by M. P. C.; Progression (continued), by Baron Nils Posse; Municipal Gymnasiums, from the Boston Medical and Surgical Journal; The Lymphatic System (continued) by Grace M. Boswell.

The Gymnasium, London, Eng.:

August, 1899. London District Girls' Competition, 1899 (illustrated; Mr. H. Brown describes his visits to the Ghent Fete; The Gymnastic Teachers' Institute; Gymnastic Fete at Frameries; The Gymnast; The Annual Meeting of the Gymnastic Teachers' Institute.

September, 1899. Vinstra and Kampesaeter; The Corset; Extract of Conditions of the 200-Guinea International Challenge Shield Competition, 1899-1900, N. P. R. S.

October, 1899. Athletics and Gymnastics, H. B.; Mr. H. Brown describes visits to Continental Gymnasia (visits to Lubeck, Kiel, Hamburg); Rambles Round Dublin; The Liverpool Gymnasium; Sweden and Denmark; Gymnastics in Norway.

December. In Prussia; Mr. H. Brown Visits Brunswick; The Schoolboy and the Gymnasium, F. P. North; Liverpool and District Notes; Club Swinging, Henri Lawton.

Mind and Body, Milwaukee, Wis.:

September, 1899. Mental Effects of Physical Exercise, by Carl Ziegler, M.D.; Gymnastics for College Women, by Dr. Louisa Smith; Physical Education in the Public Schools of New York City, by M. Augusta Requa; Defective Sight and Hearing, by Mrs. Frances W. Leiter; Swinging Board; Athletics; World's Best Records.

October, 1899. Value of Muscle Training in Treatment of Vocal Defects, by G. Hudson Makuen, M.D.; Malade de Metier, Translated by Dr. W. O. Ocker; "Play Ball," by S. Y. G.; Mark Twain and "Christian Science," extracts from European Journals on Physical Training, by W. A. Ocker, M.D.; The Relation of Military Drill and Physical Training at West Point; Notes and Remarks; Many new Records made by American Athletes; Leap-Frog Drill, by E. A. Heers; School Hygiene; Athletics.

November, 1899. When to Prescribe Physique, by Dr. E. M. Schaeffer; A New Ball Game; Improvement in Army Organization; Abolishing the School Recess; An Opportune New Publication; King Dollar in Foot-ball; extracts from European Journals on Physical Training, W. A. Ocker, M.D.; "Forced" Education; Games, by W. C. Schaefer; Long Wand Exercises, arranged by Dr. Robert Fischer; Proposed Amendments adopted by the Metropolitan Association of the Amateur Athletic Union; Athletics.

POPULAR SCIENCE MONTHLY, New York, N. Y.

September, 1899: Influence of the Weather Upon Crime, by Edwin G. Dexter, pp. 653-660.

October, 1899: Present Position of Sociology, by F. Spencer Baldwin, pp. 811-822.

EDUCATIONAL REVIEW, New York, N. Y.

September, 1899: Educational Progress of the Year (a report presented to the National Council of Education at Los Angeles, Cal., July 10, 1899), by Nicholas Murray Butler, Columbia University, New York, pp. 167-184.

EDUCATION, Boston, Mass.

September, 1899: Sympathy in the Schoolroom, by Ray Greene Huling, Sc.D., English High School, Cambridge, Mass., pp. 11-18.

October: The Training of the Will, by President John E. Bradley, LL.D., Jacksonville, Ill., pp. 65-77.

November, 1899: Chinese Pedagogics in Practice, by Prof. F. B. Dresslar, University of California, Berkeley, Cal., pp. 136-143.

Observations on Rhythmic Action, Prof. E. W. Scripture. Science, December 1, 1899, p. 807.

The Card Index of Experiment Station Publications, Dr. A. C. True, Science, November 3rd, 1899, p. 650.

Neurotic Spine, Henry Ling Taylor, M.D. Pediatrics, November 15th, 1899.

A New Form of Piston Recorder and some of the changesof the Volume of the Finger which it Records, Prof. W. P. Lombard and W. B. Pillsbury, from the Physiological Laboratory of the University of Michigan. American Journal of Physiology, December 1, 1899. Vol. III, p. 186.

PUBLICATIONS RECEIVED.

Mind & Body, Milwaukee, Wis., monthly.

Amerikanische Turn-Zeitung, Milwaukee, Wis., weekly.

Revue Internationale de Pedagogie Comparative. Nantes, France, monthly.

The Gymnasium, London, England, monthly.

Le Stand, Paris, France, weekly.

La Gymnastique Francaise, Paris, France, monthly.

Boletin de Ensenanza Primaria, Motevidio, Uruguay, bimonthly.

Dietetic & Hygienic Gazette, New York, N. Y., monthly.

The School Weekly, Chicago, Ill., weekly.

Posse Gymnasium Journal, Boston, Mass., monthly.

The Manual Training Idea—Reminiscences of Personal Growth into Its Spirit, by Frank A. Hill, Litt. D. Reprinted from the Manual Training Magazine, Vol. I, No. 1.

Some Results of Dietary Studies in the United States, by A. P. Bryant. Office of Experiment Stations. Reprinted from Yearbook of Department of Agriculture, 1898.

Physical Training in New England Schools, by W. Scott, Secretary New England Education League. Supplement to "The People," November, 1899. Cambridge, Mass.

Pedagogical Seminary. Worcester, Mass., quarterly.

Die Entwickelung des Sozialen Bewusstseins der Kinder, von Will S. Monroe, State Normal School, Westfield, Mass. Reprinted from Sammlung von Abhandlungen aus dem Gebiette der Padagogischen Psychologie und Physiologie III. Band, 2 Heft, 88 pages. 1899.

Der Kinderfehler, Sophienhohe bei Jena, Germany, bimonthly.

Child Study Monthly, Chicago, Ill., monthly.

Statistical Methods, with Special Reference to Biological Variations, by C. B. Davenport, Ph.D., Instructor in Zoology, Harvard University. John Wiley & Sons, New York, N. Y. pp. 148.

United States Department of Agriculture, Office of Experiment Stations. A Description of Some Chinese Vegetable Food Materials and Their Nutritive and Economic Value, by Walter C. Blasdale, Instructor in Chemistry, University of California. Washington, Goverment Printing Office, 1899. 48 pp.

Games for Schools and Gymnasia, by W. C. Schaefer, Freidenker Publishing Co., Milwaukee, Wis., 1900. 36 pp.

A Study of the Kindergarten Problem, by Frederic Burk and Caroline Frear Burk, Santa Barbara, Cal. The Whitaker & Ray Co., San Francisco, Cal. 124 pp.

Educational Aims and Educational Values, by Paul H. Hanus, Assistant Professor of the History and Art of Teaching, Harvard University. New York, The MacMillan Co., 1899. 211 pages. $1.00.

The Physical Nature of the Child and How to Study It, by Stuart H. Rowe, Ph.D., New Haven, Conn. New York, The MacMillan Co., 1899. 207 pages. $1.25.

On the Invalidity of the Aesthesiometric Method as a Measure of Mental Fatigue, by Dr. George B. Germann. Reprinted from The Psychological Review, Vol. VI, No. 6, November, 1899. pp. 599-605.

Observations on Rhythmic Action, by E. W. Scripture, Yale University, New Haven, Conn. Reprinted from Science, N. S., Vol. X, No. 257, pages 807-811, December 1, 1899.

United States Department of Agriculture, Sugar as Food, by Mary H. Abel. Washington, 1899. 26 pp.

Report of Committee on College Entrance Requirements, July, 1899. National Educational Association. Departments of Secondary and Higher Education. 188 pp.

Report of Committee on the Relations of Public Libraries to Public Schools, 1899. National Education Association. 80 pp.

Report of Committee on Normal Schools, July, 1899. National Educational Association. 64 pp.

Report of the Committee of Twelve on Rural Schools, with Appendices. National Education Association. 228 pp.

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